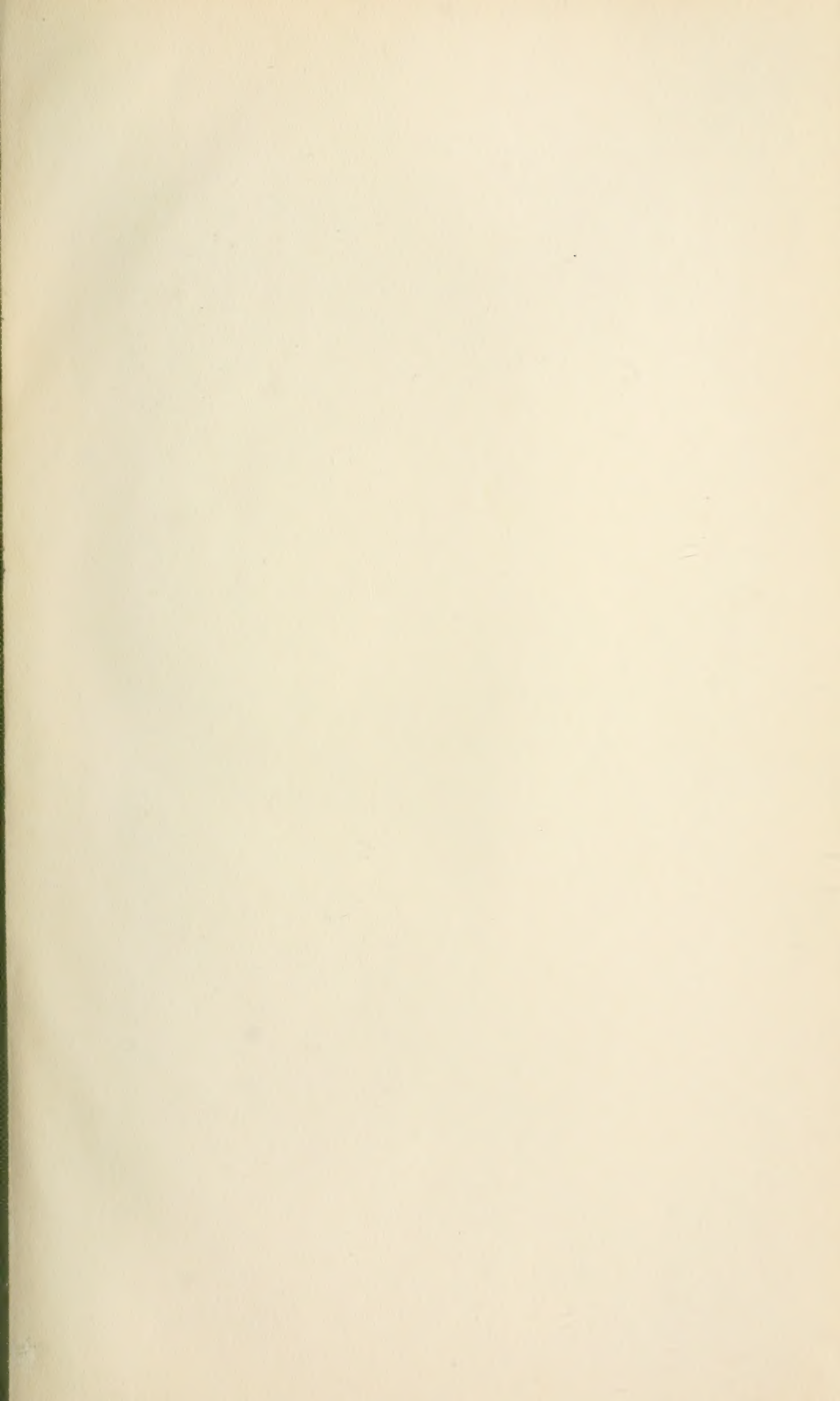


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THE OPHTHALMIC RECORD

A Monthly Review of the Progress
of Ophthalmolog

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THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

VOL. XVIII CHICAGO, JANUARY, 1909 No. 1, NEW SERIES

THE TREATMENT OF RECURRENT PTERYGIUM.*

H. GIFFORD, M. D.

OMAHA, NEB.

Knapp,¹ speaking of the treatment of pterygium, says: "I have seen, in my consultation room, a few patients with unusually bad relapses, patients that had been operated on both in America and in Europe. The hard fleshy mass was very disfiguring, and so tightly stretched and unyielding that the eye could not be moved beyond the median plane, and diplopia existed in more than half of the field of vision. It gave me the impression of a keloid scar. I advised some patients against a further operation. The result was they took the first transatlantic steamer, were operated on and came back, to put it mildly, unimproved." Later, under conclusions he says: "Pterygia that have relapsed after one or several operations and have the aspect of a keloid scar should not be meddled with."

The condition of this class of patients is so deplorable that it would be unfortunate if this verdict of so high an authority (the only distinct reference to this condition that I have come across) should be considered final. I have seen several of these cases, and, as my experience has led me to an entirely different opinion, I feel called on to relate some of it.

Case 1.—History: The first patient was a man, 33 years of age, who had a pterygium removed from the left eye four times before coming to me. Each time it had returned, producing a condition somewhat worse than he had had before.

Examination: When I saw him, a broad tense fold of conjunctiva extended from the caruncle nearly to the center of the left cornea. The eye was turned in about one line when he looked straight ahead and it was impossible for him to turn it out beyond the median line. He had distressing diplopia, headaches, dizziness and a train of nervous symptoms which had brought him into a nearly suicidal frame of mind.

*This paper was written for the A. M. A. appears in the preessional reprints, but as I could not be present when the paper was called it was omitted from the proceedings.

1. Norris and Oliver's System, iii, 839.

Treatment: I first operated by dissecting the growth off the cornea and the adjacent portion of the globe, without excising any of it, and covered the defect by a small lip flap. The growth return promptly, and I made a second attempt, covering the defect with a large pedicled flap of conjunctiva, twisted down from above the cornea. This operation was also a failure, the immediate good result being followed by a recurrence of the growth on the cornea and a return of the diplopia. The third time I dissected back an unusually large amount of conjunctiva without excising any of it, leaving the globe bare all around the inner two-fifths of the cornea, for a space from one-fourth to nearly one-half inch in width. This was covered by a large Thiersch flap from the forearm, the eye then being held in a position of abduction by a suture passed through the tendon of the external rectus, and the skin of the outer canthus; both eyes being dandaged for forty-eight hours after the operation. The result was a perfect success. The operation was done thirteen years ago and there has been no relapse since; the abduction of the eye is not absolutely normal, but it is free enough to avoid any inconvenience under all ordinary conditions.

Case 2.—History: This patient, a man, aged 56, came to me for a primary operation for a good-sized pterygium on the inner side of the left cornea.

Treatment: I first operated by the ordinary lozenge shaped incision: then by sliding flap without excision; then by the application of a small Thiersch flap, which I found after about two months carried well on the cornea by the returning Pterygium. By this time the patient had marked decrease in abduction, with diplopia in the outer half of the field. I then dissected back the conjunctiva, much as in Case 1, and covered the defect with a large epithelial² flap, taken with a razor, from the inner side of the lower lip. This produced a permanent cure, no relapse having occurred in the succeeding ten years.

Case 3.—History: The patient, a man, aged 33 years, had been operated on four times by other oculists before coming to me. The conditions were much the same as in Case I, but the diplopia and distress were not so pronounced. A free dissec-

2. For some years I thought that the communication which I made on the subject of epithelial lip flaps, in 1897, contained the first suggestion of applying the Thiersch method of getting grafts to mucous membranes. Not long ago, however, I came across an article by Wölfler, in Langenbeck's Archiv, published in the 80's, in which he described the use of flaps taken with a razor from mucous membranes for some plastic work about the eye.

tion with the application of a large epithelial lip flap effected a cure with the first operation; no relapse after eight years.

Case 4.—History: This patient (Fig. 1), a man, aged 54 years had had a pterygium removed from the left cornea at least seven times before coming to me. He had to some extent lost track of the number of his operations; he thought it was ten, but was sure of at least seven.

Examination: When I first saw him he had a broad, red, deep-seated pterygium reaching nearly to the center of the left cornea, the greater part being above the middle line. The eye



Fig. 1.—Result in Case 1 about ten years after the last operation. In this, as in all of these cases, the flap grew back on the cornea for about 1 mm. within the first month after the operation, but made no further progress after that.

could not be moved out beyond the center, and he had diplopia in all the left half of the field.

Treatment: I operated by putting on a large skin flap, as in Case 1, but made the mistake of injecting cocaine solution under the conjunctiva. This gave perfect anesthesia, but made the membrane so swollen that it was difficult to arrange the skin flap as accurately as usual. The immediate result was good, but (either because of the faulty application of the flap, or, more probably, on account of the deep groove in the cornea, which the repeated operations had made it necessary to make in removing the growth), in six weeks the man came back with the Thiersch flap growing over on the cornea at a comparatively rapid rate, about one-half the space between the margin and the center being cov-

ered by it. Then, under chloroform, the flap and the conjunctiva were dissected off and slid back toward the nose, and the bare space on the globe nearly covered with a still larger flap. This gave an excellent result, and as the man promised to let me know if he had any further trouble, and I have heard no complaint for the fifteen months since the operation, I judge the effect to be permanent.

Case 5.—History: In this case, the patient, a girl, aged 15, had a broad pseudo-ptyerygium following a burn in early childhood, reaching two-thirds of the way to the center of the cornea from the inner side, about two-thirds of the growth being below the median line.

Treatment: I dissected this back and covered the defect on the globe with a Thiersch flap. This flap grew back over the corneal edge about one-sixteenth of an inch, but as it stopped there and the motility of the eye was perfect, I considered the result good. But I either forgot to give the girl instructions about keeping the flap wiped off, or else she forgot to carry them out, and the resulting deformity and irritation, which always occur when the toilet of a large Thiersch flap on the eyeball is neglected, caused her to seek advice elsewhere. The result was that in the course of the next six years she had the eye operated on seven times by three oculists in different cities. These operations included the application of two grafts of rabbit's conjunctiva and two lip grafts.

When I saw her again, eight years after her first visit to me, the appearance of the eye was much as it had been before my first operation. There was a decided difference for the worse, however, inasmuch as while, at first, she had practically no subjective symptoms and no appreciable reduction of motility, she now was unable to turn the eye outward more than two lines beyond the median line, and she suffered greatly from headaches and diplopia. She admitted that my first operation had done her more good than anything else, but she still had such a prejudice against the Thiersch flap treatment, that at the next operation I tried an epithelial lip flap. This healed perfectly and showed no tendency to grow back on the cornea. However, the abduction was still deficient, and after two weeks I added another lip flap at the nasal side of the first. For a time the result was excellent, but gradually, without any return of the growth on the cornea, the lip flaps shrank laterally, so that after six weeks,

the restriction of motility and the headaches were giving decided trouble again.

Then, without disturbing the lip flaps, I dissected back the conjunctiva and put on a Thiersch flap about 3.16 by 3.5 inches in extent. The immediate result of this operation was excellent, and when she returned eight months later there was no further extension of the growth on the cornea, the headaches had practically disappeared, and she could produce diplopia only by looking far to the left. This gave her almost no inconvenience, but as her heart was set on getting as nearly perfect a result as possible, I put in another skin flap about one-eighth inch wide, along the nasal border of the flap put on at the preceding operation. This gave perfect motility to the eye, and as she wipes the flaps every day there is no irritation, and the eye looks almost normal. And so, after twelve operations, five of them charged to my account, the girl is, I think, cured. A tiresome record, surely, which I give for the benefit of the easily discouraged; but will any



Figure 2.

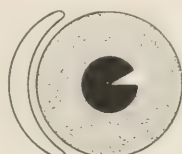


Figure 3.

Fig. 2.—Relative size and position of flap used in severe cases.

Fig. 3.—Size and position of flap used in simple recurrences.

one deny that, to a young woman, the result is worth the trouble produced by my five operations?

My experience, then, indicates that all of these bad cases of recurrent pterygium can be cured if a large enough Thiersch flap or epithelial lip-flap is put on. Figures 2 and 3 indicate relative size of the flap to be used. In doing the operation it is important, in dissecting back the conjunctiva, to clean the cornea and sclera very thoroughly and to be sure that the flap is well attached to the globe before the lids are allowed to close. The device which I have adopted in Case 1, of fixing the globe in a position of abduction to prevent displacement of the flap, may be necessary in some extreme cases, but if the flap is pressed down firmly with an absorbent cotton toothpick swab, slightly moistened, so as to bring its entire under surface into close contact with the globe, and the lids are held open for three to five minutes thereafter, then both eyes kept closed with a rather firm bandage, with

plenty of cotton, for 48 hours, failures from displacement of the flap will be rare.

In applying the latter, it is sometimes necessary to tuck the edges in under the loosened conjunctiva, and I have once or twice protected the well-applied flap by temporarily drawing the conjunctiva partly over it with a suture. The flap should be slid directly from the razor to the globe. It should be cut large enough, and, after covering the defect on the globe, the excess on the temporal side is trimmed off so as to leave bare the cornea and a strip of sclera about 1/16 inch wide between it and the flap.

Skin flaps should be very thin. The best surface from which to cut them is the inner forearm. In obtaining epithelial lip flaps, the clamp which I have invented for this purpose and described eleven years ago is unnecessary and I have practically discarded it. If the operator, with the thumb of the left hand protected from slipping by cotton, turns out the left side of the patient's lower lip, while an assistant turns out the other side, the operator can, with a sharp razor, get as large a flap as is necessary from the space between the thumbs. The assistant should have a moist swab ready, against which the razor can be pressed in cutting the flap loose. These delicate lip flaps should be spread out carefully on the razor, and then slid at once to the globe. If, in manipulating one, it gets turned over so that there is any doubt as to which side is up, it is better to throw it away and get another.

Regarding the Choice Between Lip and Skin.

For the pterygium operation, or for any other operation on the globe, each sort of graft has certain disadvantages. The chief objection to the skin flap is that it remains skin. The statement to the contrary, which is not infrequently met, can only be explained by supposing that the writers, without personal experience, are copying the statement from others, or that when they have used skin for filling defects in mucous membranes their grafts have not healed on, but have merely acted as a protective under which the epithelial cells have filled in the defects. As the result of hundreds of operations and experiments bearing on the subject, I am certain that a piece of skin, when once established on a mucous surface, shows absolutely no tendency to change either in character or size. I have just removed a skin flap from a conjunctival sac into which I implanted it fourteen years ago. During this period it had shown absolutely no tendency to lose its epi-

dermal characteristics. On account of not being subject to the friction which skin generally gets, these flaps can not clean themselves on the eyeball and the epidermis collects on the surface and not only looks very unpleasant but, probably from a certain amount of decomposition, it sets up considerable irritation. On the other hand, if the surface is wiped carefully every day or two, these flaps look first-rate and cause no trouble.

Lip flaps have the disadvantage that, no matter how thin they are cut, they have, on the eyeball, a slight reddish color. Moreover, in some cases they show more tendency to shrink, after apparently perfect healing, than the skin flaps do. Of this I am sure, in spite of that fact that I have cured some cases with lip flaps where skin flaps (not large enough) have been tried without success. In practice I choose the lip flaps when, on account of the age or disposition, a slight redness of the eyeball is of no importance, or when I have reason to think that the instructions about wiping a skin flap would not be carried out. When the patient prefers a slight advantage in appearance at the expense of the regular and indefinitely-to-be-continued trouble of wiping the flap, I use skin; also in extra bad cases of recurrence, such as Cases 4 and 5. In such cases, having once stopped the tendency to recurrence with a skin flap, if the bother of wiping it becomes too irksome, or, if in spite of some care, it still causes trouble, it can be excised later and replaced by lip. I have had to do this in two cases.

Treatment of Less Serious Recurrences.

The slight recurrences in which the conjunctiva grows back on the cornea for a millimeter or two and there stops, require no treatment, but when a pterygium returns for the first time and apparently is progressing steadily, without any reduction of motility, a cure can probably be effected in most cases by the application of a narrow circumcorneal skin flap, as originally proposed by Dr. F. C. Hotz, to whom we owe the introduction of the Thiersch flap in the treatment of pterygium. In general, however, I believe we can more surely prevent a second recurrence by using a somewhat larger flap, applied as in Fig. 3. Whether to use skin or thin lip flaps for this purpose can be determined by the considerations indicated above.

The Prevention of Recurrences.

In discussing the prophylactic treatment of recurrent pterygium, one might legally drag in all the various operations that

have been tried as primary measures, but on this point I will merely say that, after trying a number of different operations, I have settled on the McReynolds operation as that which gives the smallest proportion of recurrences. I operate on about sixty cases every year, and, as I always tell patients that there is no hurry about an operation unless the growth is at least half way to the center, I do not operate on more than two-thirds of the cases that I see. Recurrences with McReynolds' operation have amounted to about 2 per cent.

I have made some very slight deviations from McReynolds' original plan; first, in using a single needle instead of a double needle thread. By passing the needle first through the conjunctiva at the bottom of the pocket, then up through the point of the pterygium, then back down to the bottom of the pocket again, one gets exactly the same result without the bother of a double needle. I also think it worth while to cut off part of the covering of the pocket in some cases where, after drawing the tip of the pterygium down under the conjunctiva, quite a redundant flap is left above it. This serves no useful purpose, as the surface is covered entirely without it; it merely makes a somewhat unsightly lump which I believe has favored the recurrences in the few cases in which I have seen the growth come back.

Other points to be considered in a primary operation are the use of a very sharp knife in dissecting off the growth from the cornea, so as to leave practically nothing of the growth and yet to take off as little as possible of the corneal tissue. It is also important to scrape the exposed sclera very clean, and where, within a day or two after the operation, a margin of fibrin can be seen extending for one or two mm. over the corneal edge, I believe it is well to scrape this off once or twice until the corneal epithelium has a chance to cover the defect.

A CASE OF BILATERAL FULMINATING GLAUCOMA.*

ROBERT L. RANDOLPH, M. D.

BALTIMORE, MD.

Cases of fulminating glaucoma are so rare that I thought it would be of interest to exhibit this one to the section. I can find but few cases of the kind recorded.

The patient is 63 years old and is a farmer living some

*Exhibited at the meeting of Section on Ophthalmology and Otology, Medical Chirurgical Faculty of the State of Maryland, Tuesday evening, November 24, 1908.

twenty miles from this city. During the early part of the first week in February, 1908, he was occupied in putting in ice and on Thursday and Friday he was engaged in killing hogs. Early on the morning of Saturday he was awakened by a severe pain in both eyes. He tried several household remedies, which gave him no relief. He went out into the fresh air and remained an hour or more, trying to occupy himself in farm work, and hoping that his suffering would grow less. He went in about breakfast and sent for his family physician, who came and pronounced his condition "grip" and prescribed accordingly. Nothing gave him the slightest relief and by evening his sight was materially affected. His doctor saw him again on Sunday and other remedies were tried, but with no avail, and by supper time he could see nothing in the room. He was given a strong anodyne that night and when he got up early Monday morning light perception was gone. It never seemed to occur to his physician that he was suffering with glaucoma, but he was assured that his sight would return as soon as the grip had left him.

He continued to suffer great agony all that week, and when I saw him exactly ten days after the beginning of his attack, I found him still a great sufferer, and his eyes presenting the typical picture of glaucoma. The pupils were widely dilated and the iris of each eye was jammed up against the cornea, practically obliterating the anterior chamber. The eyeballs were intensely red. The tension was as high as I have ever seen in a glaucomatous eye. It is needless to say that there was not the slightest evidence to think that he saw light. I could promise nothing more than relief from his pain. I operated that day on his right eye and on the next day on his left. The relief was almost instantaneous, and in two weeks his eyeballs had cleared up to such an extent that scarcely more than a little redness was left about the corneal wounds.

The case is especially interesting to me for these reasons:

1st. As being a case of bilateral fulminating glaucoma, and in this respect it is exceedingly rare. Cases of this variety of glaucoma of one eye are occasionally reported.

2d. As being another one of those instances in which the family physician has entirely failed to recognize glaucoma till it was too late.

3d. As being an instance where the almost magical effects of iridectomy were illustrated, as evidenced by his freedom from

pain in the eye operated upon within twelve hours after the operation, and he has never had any return of pain in either eye. Both nerve heads, as you will note, are brilliantly white and deeply cupped.

I am of the opinion that had his trouble been recognized even as late as Sunday that some vision might have been regained by immediate iridectomy. In conclusion, I may say that his family history was free of any hereditary tendencies in this direction, and that he had never had the slightest trouble with his eyes up to the time of this outbreak. That the severe exposure he passed through during that week was a strong exciting cause seems certain.

CONDITIONS UNDER WHICH THE STRIAE OF INCIPIENT SENILE CATARACT APPEAR AND DISAPPEAR.*

LEARTUS CONNOR, A. B., M. D.

DETROIT, MICH.

The problems involved in the extraction of senile cataract are mainly solved. Aside from the operator's personal equation, methods and results are well nigh uniform and satisfactory. Quite different is the situation in the etiology and treatment of incipient senile striated cataract; so hopeless is this that, after making a diagnosis, the physician, in effect says, "no treatment avails until the lens be ready for operation." Since this period of ripening varies from a few months to many years, it hangs as a dark pall over the patient's life. Some accept the inevitable, others drift from doctor to doctor till they fall into the hands of laymen, who advertise cataract cures. Do the facts warrant any change of prognosis in cases of incipient striated senile cataract?

At the meeting of the Ophthalmic Section, A. M. A., 1907, the writer presented evidence proving that, in some cases, the striae of incipient senile cataract had given way to transparent lens. While collecting this evidence he learned something of the conditions associated with the development and recession of these striae, and this is herewith presented with other pertinent facts. These conditions were gathered from his own records; from medical literature, and from private contributions of distinguished ophthalmologists in every part of the world, whose cordial aid the writer gratefully acknowledges.

*Read before the Detroit Ophthalmic and Otological Club.

1. *Conditions Associated with Development of Incipient Senile Cataract.* In my own cases one was a diabetic—the tissues and fluids of the body being starved by the presence of abnormal amounts of sugar. Six were widows, five large, fleshy, flabby, all past middle life; all were very nervous, including the sixth, who was slender; all suffered from chronic constipation, indigestion, intestinal infections, coated tongue, foul breath. All suffered from irregular attacks of physical and mental depression, relieved by free cleansing of the large intestine. Three cases had a high degree of hyperopia, two a moderate amount of astigmatism, and one a mixed astigmatism; all presbyopia. In all was more or less conjunctivitis and blepharitis.

In the cases of incipient cataract reported by correspondents, we find noted the presence of diabetes in twenty cases; syphilis in three cases; nephritis in four cases; rheumatism in one case; arterio-sclerosis in two cases; intestinal infection in seventy cases.

Among the local conditions mentioned were refractive errors in forty-five cases; choroiditis in nine cases; use of eyes under bad conditions in forty cases. All these conditions antedated the first observation of the lenticular opacity. Beyond a doubt, arterio-sclerosis and high blood pressure existed in many, if not all, these cases, but was not mentioned.

2. *Conditions Associated with the Regaining of Lens Transparency.* In my own cases, these may be listed as general and local. The general included such measures of diet and medication as secured and retained the most perfect health of the intestinal tract. This removed the bad breath, foul tongue, indigestion and constipation. All were given regular out-of-door exercise within specified limits, regular rest, care of the skin, systematic exercise in breathing, the quality and quantity of food best adapted to perfect assimilation. The local treatment included regular use of hot water to the eyes, the correction of refractive errors and keeping them corrected; the use of vibratory and finger massage, the use of drops of boric acid solution and occasionally of sulphate of zinc and mercury oxide ointment.

In the cases of my correspondents, the conditions associated with the regaining of lens transparency were also both general and local. The general conditions were: Eliminatives and tonics (in a broad sense) in seventy cases, anti-diabetic management in twenty cases, specific management in three cases, iodide of potassium in two cases (arterio-sclerosis), management of renal dis-

ease in four cases, rheumatic management in one case. Vichy cure one case, strophanthus in five cases. The local conditions mentioned were corrected refraction in forty-five cases, dionin in eleven cases, galvanism in seven cases, finger and vibratory massage in nine cases, hot applications in eight cases, Forester's operation in two cases, zinc sulphate in two cases.

All conditions found associated with the return of lens transparency may be grouped under two heads:

1. Those which improve the nutrition of the entire body.
2. Those which act locally to nourish the lens.

Under the first we have the management of diabetes, syphilis, nephritis, intestinal disease (especially of the large intestine), arterio-sclerosis, high blood pressure, rheumatism, heart weakness.

Under the second we have the correction of refractive and muscular defects, the local use of hot water, dionin, finger and vibratory massage, galvanism and aseptics.

No observer has seen any benefit from any drug or other condition, local or general, except it operated in one of the ways indicated. None will question the wisdom of treating any specific disease with which incipient cataract may be associated, as diabetes, nephritis, syphilis. The frequency of such concurrence, while not great, is adequate to awaken a strong suspicion that the general pollution of the blood incident to such diseases may be a factor in promoting lens opacity. In cases of chronic disorder of the intestinal tract, with storms of auto-infection, the removal of this condition by regulation of diet, respiration, bathing, exercise, give ground for the hope of sending better nutriment to the crippled lens.

There is good reason to believe that hot applications to the eye-ball, finger or vibratory massage and dionin, properly applied are able to accelerate the current of lymph through the lens and out of the anterior chamber through the pectinate ligament and Schlemm's canal into the veins; to increase the action of the cuboid cells of the lens capsule; and even the living elements of lens fibres.

If, then, we can make the general blood current cleaner, the local lymph better adapted to grow healthy lens fibres; the capsular cells more active in filling up the lens vasculæ, we get an intelligent conception of the way in which the conditions of an individual may be so changed as possibly to result in a restoration of transparency to his incipient cataract.

Dr. Greene has studied blood pressure in relation to cataract

on a large number of cases at the Old Soldiers' Home in Dayton, Ohio, and shown that in patients with high blood pressure cataract is found in 18% more frequency than in those with normal pressure: hence, high blood pressure is a factor to be considered in dealing with these cases and its reduction towards normal is to be constantly sought.

In the cases under discussion, all the conditions promoting their formation long antedated striae formation: so it is to be expected that the conditions promoting transparency must continue for a long time, ere the lens becomes clear.

Facts seem to prove that the lens having incipient cataract is smaller than the non-cataractous lens, and that this is due to a failure of the capsule cells to form lens fibres adequate to fill the vacancy left by shrinking of those that constantly join the nucleus. The result is an open space filled with lymph, making striae, which after a time undergo changes into dots, granules and general opalescence. Later, adjacent cortical cells degenerate, and this process spreads till the capsule is reached and the cataract ripe.

Bearing on this discussion is the fact that India is full of individuals having senile cataracts. Major Smith, a general practitioner there, has operated on more than twenty thousand cases and, did his time and strength permit, he could have material for thousands of operations yearly. The one condition most evident in these patients is their mal-nutrition, general always, local often, from bad and insufficient food and other accessories of a wholesome life.

There is good reason to believe that the proportion of senile cataracts per thousand in any community diminishes as the people improve in their conditions of living, and care of their eyes by wearing full correction of refractive defects. Improvement in these conditions has been shown to diminish the prevalence of myopia, and by these same factors it is hoped to rid the world of tuberculosis.

Cataracts are no part of old age, but the evidence of general or local mal-nutrition induced by chronic bad habits of living. Taken ere too great degeneration has occurred, we have reason to believe that in some cases restoration of lens transparency may be accomplished.

Cases of Incipient Striated Cataract Suitable for Treatment.

(1) In general it may be said that those are most favorable in which the striae are due to lymph in the space between nucleus

and adjacent fibres, the rest of the lens being healthy, though sluggish in its activities, especially the cuboid capsular cells.

(2) Next are other cases in which to the foregoing arrest of development of lens fibres is added actual destruction of contents; these may partially clear up by absorption of the intercellular lymph and part of the broken down fibre substance.

(3) Striated opacities from diabetes, or syphilis, if seen early, may clear up under specific and constitutional management.

(4) No case is worth while unless willing and able to co-operate with the physician in executing the minor details of treatment.

Management of Incipient Striae of the Lenses.

The writer has uniformly detected these striae in routine study of refractive cases. The condition is carefully laid before the patient. Most are unwilling or unable to elect the best management, from a variety of circumstances. Others begin, but later abandon it, as it calls for months of persistence. A few continue to the end, some to recover the lost lens transparency entirely; others partially; others not at all. In favorable cases who accept the proposition of treatment, the following steps are pursued:

1. Cases are refracted with the utmost care, and the study repeated at the intervals needed to maintain perfect correction.

2. With closed lids, the eyes are soaked in water as hot as can be borne, for ten minutes, thrice daily, followed by placing in the conjunctival cul-de-sac a few drops of a saturated solution of boric acid.

3. Vibratory massage of the eyeballs and nape of the neck, lasting two or more minutes, according to reaction, is gently applied three times per week.

4. Dionin is used once per week, or oftener, according to effect.

5. Over-strain of the eyes, by using them too much or in bad light, or unfavorable postures, is forbidden.

6. At the first visit a careful study is made of the ears, nose, mouth and pharynx, and such measures taken as will remove all possible disturbance of eye nutrition.

7. If an accomplished and reliable internist be available, the case is referred to him for an exhaustive study of every part of the nutritive apparatus, and such treatment as is needed to restore normal conditions.

8. This being impossible, it remains for the eye man to

make such studies as he can and conduct the treatment himself. Most important is it that the infections of the large intestine be cleared out, constipation and indigestion relieved. Diet, exercise, bathing, must be minutely regulated. In syphilis, arterio-sclerosis, diabetes and allied conditions, the usual additional treatment will be followed.

Illustrative of cases:

Case 1. Mrs. M., of Adrian, Mich., was referred to me by Dr. J. H. Reynolds for defective vision, smarting of the eyes on use, blepharitis and conjunctivitis. She was a widow, aged fifty years, fleshy, very nervous, troubled with indefinite stomach disability, associated with constipation and large intestine auto-infection. Her urine contained an excess of urates. Vision in each eye was 8/200, increased to 20/30 by plus D 2.00 S. J. I. with right eye by plus D 5.50 S; J. I. with left eye by plus D 6.00 S. The media were normal except the usual appearance of fundus hypertropia.

Four years later, on October 17, 1906, she returned, saying her glasses had ceased to entirely relieve her discomfort and afford her perfect vision. This was restored by adding to her distant glasses one dioptrics sphere, and to her reading, D 1. S to her right and plus D 0.50 S to her left lens.

Nine years later, on October 13, 1905, she returned, complaining of distress in her eyes, and less acuteness in vision, with her glasses, though without glasses vision had changed from 8/200 to 12/200. Normal acuteness of vision was obtained by increasing the spheres for distance to plus D 4.50; for reading to plus D 7.00 S, O. D., and plus D 6.50 S, O. D.

But a new feature presented itself in a dark stria in right lens, reaching from the inner border far beyond the center of the pupil horizontally. In the left lens there were two striae, also starting from the inner border and reaching to the center of the lens. Both were surrounded with slight opalescence. Her glasses were changed to meet the findings and her family physician asked to restore the normal condition of the large intestine (removing the obvious infection, the constipation and indigestion, with their associated discomforts, by diet, exercise and otherwise as he deemed wise).

Locally she was directed to soak her eyes in hot water for ten minutes each eye, four times daily, and use boric acid drops

after each application. Diagrams were made of the location of the striae, as well as a word description.

One year later, October 4, 1906, she was again studied. By the ophthalmoscope, or oblique illumination, no trace of the striae of the previous year could be detected, but with a highly magnifying lens the faintest trace of imperfection could be seen at location of old striae. Her vision was now 20/200 with each eye, and increased to 20/20 by the glasses of the previous year; also J. I. with old reading glasses.

One year and eight months later, July, 1908, both lenses were transparent, and vision with previous glasses remained 20/20 and J. I. with each eye.

Thus during seventeen years the vision of each eye had increased from 8/200 to 20/200, and with correcting glasses from 20/30 to 20/20. Striae developed during the nine years from 1896 to 1905 when she had neglected her intestinal tract, and the proper refraction of her eyes, but vanished during the following year under proper local and general conditions.

Case 2. On October 17, 1906, Mrs. S. E. M., Elmira, N. Y., sought relief from aching eyes and blurred vision.

She was a physician's widow, aged 57, much worn by long attendance on her invalid husband. For years she had suffered from constipation, intestinal auto-infection, indigestion with their usual complications, and frequent attacks of headache. Her vision was 20/70 in each eye, increased to 20/50 by plus D I.25 C. Ax. 180 deg. in O. D; in O. S. to 20/30 by plus D 0.75 C. Ax. 90 deg. Each lens presented a diffuse haziness over its entire extent and stria; in the right eye this was vertical across the entire lens, in the left oblique from the center of the lower inward quadrant through the center of the upper and outward quadrant.

Treatment: She was directed to regulate her diet for the relief of intestinal conditions; to walk from one to three miles daily; take a hot bath for twenty minutes three times a week; locally, to soak her eyes in hot water ten minutes four times daily; given vibratory massage daily for two minutes; dionin on alternate days.

On November 29, 1906, the vision of each eye was 20/20 minus two without glasses and 20/30 plus two with glasses (the cylinders already mentioned). The stria in the left lens had disappeared and greatly diminished in the right. In a letter from Chicago, whither she had moved, dated August 10, 1907, she re-

ported that her vision remained perfect with glasses, and the use of her eyes entirely comfortable.

Powers' Case of Regained Lens Transparency.

On October 22, 1908, the following report was received from Dr. Geo. H. Powers, Emeritus Professor Ophthalmology, University of California:

"Some twenty or more years ago I was asked to make an inspection of the eyes of the mother of a young lady who was my patient, being warned not to say anything in the presence of the elder lady which could cause her anxiety, as her health was considered critical. She was a middle-aged, wealthy widow, whose every material want could easily be paid for, but who was neurasthenic. Her only particular pleasure and occupation was in reading, and this she did intemperately. She had blurred vision and headaches. I found nothing pathological in the eyes except lines radiating from periphery towards the center of the lens, most unmistakable and easily seen on the first glance with the ophthalmoscope.

"I can not say whether I ordered glasses or a change of glasses, for all my records went up in the great fire, but I remember perfectly well how careful I was of my words when advising the lady to avoid excess in reading, to try and find pleasure in croquet, tennis or other out-of-doors pursuits, and above all things to keep cheerful and rather to seek amusing things. Of course I told the daughter her mother had cataract and would some time in the future require operation, etc. I do not know when the lady was told of my statements, but when it was done she went to Philadelphia to consult Dr. Thomson, who, I was told, assured her that she not only had no cataract at the time of the examination, but that it was absolutely certain that she never had any such condition.

"Having more respect for Dr. Thomson's skill with the ophthalmoscope than he seemed to have for mine, I feel perfectly sure that this was a case of absolute disappearance of incipient cataract.

There is no room for the shadow of a doubt that the lines of opacity were there, as many as ten or twelve, perfectly distinct, very regular and sharply defined."

Summary.

1. The striated lenses of incipient senile cataract are the result of disease, coincident with advancing years, but not a necessary

part thereof (more than cholera-infantum, club foot or squint are caused by childhood).

2. This disease is the result of general malnutrition and diminished local immunity, or failure of the capsule cells to make lens fibres adequate to fill intercellular gaps left by shrinkage of cells adjacent the nucleus.

3. These striated lenses occasionally become clear, either without or with a great variety of treatment.

4. In cases of incipient striated senile cataract, every existing cause of general or local malnutrition should be eliminated, and every known agency of promoting general or local nutrition be utilized, that the lens may regain transparency in whole or part; or, this failing, that workable vision be retained for the longest period; or, this failing, to secure the best possible preparation for the shock and traumatism of extraction.

91 LAFAYETTE BOULEVARD.

A CASE OF MIKULICZ'S DISEASE.

(Exhibited at a meeting of the Johns Hopkins Hospital Medical Society, December 7, 1908.)

By ROBERT L. RANDOLPH, M. D.

BALTIMORE.

(Illustrated.)

By Mikulicz's disease is understood a symmetrical enlargement of the lachrymal glands and also of the salivary glands. It is not necessary, however, for all of these glands to be enlarged to warrant a diagnosis of Mikulicz's disease. The enlargement as a rule occurs in pairs, and those most commonly associated are the lachrymals and parotids. In von Mikulicz's case (a description of which will be found by von Mikulicz in *Beiträge zur Chirurgie. Festschrift gewidmet Theodor Billroth, etc.*) the lachrymals, parotids, sublinguals and the submaxillary glands were all enlarged.

The absence of either local inflammatory signs or of systemic disturbance of any kind whatever, the symmetrical enlargement of the glands, the sharply marked enlargement, the process being confined strictly to the gland itself and involving none of the surrounding tissue—all these signs make the diagnosis easy. The prognosis so far as life is concerned is very good, but as to a speedy recovery is very doubtful, as the affection often lingers for years. This woman has been affected since the last of May; in other words, more than seven months. It is interesting to note

that in the presence of an intercurrent disease the enlargements have been known to disappear rapidly. The etiology and pathology, too, are obscure. Von Mikulicz inclines to the view that it is probably of parasitic origin and that the organism finds its way into the glands through one of the acini of the latter. The gland on inspection is noticed to be enormously enlarged and, instead of the grayish-red appearance of a normal gland, we find a homogenous looking tissue yellowish-white in color, while the substance of the gland is remarkably poor in blood-vessels. According to Minelli the microscopic changes take on the character of a hyperplastic lymphadenitis. The function of the gland is probably permanently impaired, for more than one case is recorded in which



various methods tried to provoke a flow of tears (such for instance as crushing an onion near the eyes) have failed to bring forth a tear, and where a patient after passing through this disease was never able to shed a tear. While the enlargement disappears, the diminution in size is caused by a retraction or shrinking of the connective tissue elements which have supplanted the lymphatic elements of the gland. This being the case, it is clear that the function of the gland is entirely lost.

The cases of Mikulicz's disease which have been recorded number less than fifty, and most have been reported by general surgeons, though ophthalmologists have placed a few on record. among others Fuchs and Axenfeld in Europe and Dunn and myself in this country. On June 19, 1908, E. D., a negress thirty

years old, came into the eye clinic of the Johns Hopkins Hospital. There was an enormous symmetrical enlargement of the lachrymal glands. The enlargement was confined absolutely to the gland itself, over which the surrounding tissue was easily movable. There was no pain on pressure and the only discomfort associated with the condition was the inability to open the eyelids completely. The enlarged glands compelled her to throw her head back so as to see between the narrowed palpebral split. There was no conjunctivitis, but there was disturbance in the function of the gland as evidenced by slight lachrymation.

The enlargement is not so easy to bring out in a photograph in one so black as my patient, but the accompanying photograph is sufficiently suggestive, I think, to establish the diagnosis. Over the right eye the tumor is well seen and over the left eye the profile of the enlarged gland is readily recognized. She was put on iodide of potash, which she took during July and August, and when I returned from my vacation in September the swellings had entirely disappeared after having been present for more than three months. The parotids had just commenced to swell. The enlargement of the parotids seemed to reach its height about the middle of November, and while they are, as you observe, still very big, they are not so conspicuous as they were three weeks ago, at which time she presented the appearance of a person with a most intense case of mumps. The right gland now (four months since the parotids commenced to participate in the process) is nearly as big as a hen's egg, while the opposite gland is about half the size. The patient, as you see, is apparently a fine specimen of bodily health, and I could never get any history of luetic infection. Iodide of potash and arsenic seem to be the favorite remedies in this class of cases, but a study of the cases recorded does not encourage one to hope for much improvement from either of these remedies. There is no reason for thinking that lues has anything to do with causing the disease. Ranzi reports several cases in which the x-ray was used on the enlargement and rapid diminution in size followed, but as soon as the treatment was stopped the enlargement returned. This case is peculiarly interesting, as the enlargement of the lachrymals and parotids did not occur simultaneously, but the parotids apparently took no part in the process until the swelling of the lachrymal glands had practically disappeared. It may be that we will see further on a participation of the other salivary glands.

Reports of Societies

SECTION ON OPHTHALMOLOGY, COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting October 15, 1908. Dr. Howard F. Hansell, chairman, presiding.

Several Unusual Forms of Superficial Inflammation of the Cornea.

Dr. Wm. Campbell Posey reported two cases. In the first, a boy, aged nine years, the inflammation took the form of a dendri-form opacity, which was raised above the surface and possessed a rather grayish white appearance, which was found to be due to a thickened epithelium. The opacity formed with but a moderate amount of conjunctival irritation. The child was in poor health and had suffered from colds in the head and sore throat. The opacity was viewed as allied to the superficial punctate keratitis of Fuchs, the association of the ocular condition with the catarrh of the upper air passages, its mild course, the corneal avascularity, the unbroken epithelial surface, and the slow recovery with the complete restoration of vision without resulting corneal haze being common to both processes. It was also regarded as being perhaps not without interest or significance that when the patient was but eight months old he was treated by the writer for what appeared to be a sharp attack of vernal conjunctivitis in both eyes, the inflammation having appeared in the latter weeks of May and having persisted, despite all treatment, with more or less severity until autumn.

In Case II the corneal opacity took the form of a Y, the base of the Y corresponding to the limbus below, while the arms bifurcated over the center of the cornea and extended to within 3 or 4 mm. of the nasal and temporal limbus respectively. The opacity was sharply defined from the rest of the cornea, which was quite clear, by a regular line of demarcation. Under high magnification the haze was found to be made up of a homogeneous tissue, which appeared to be studded with numerous small dots and traversed by fine lines. A long blood vessel ran from the conjunctiva below up the stem of the opacity and bifurcated at the summit, to spread out into numerous fine branches at the extremities of the arms of the Y. This vascularity was considered as accidental rather than essential, being viewed as a recent production of conjunctival irritation and analogous to the superficial vascularity which may so often be observed in the later stages of interstitial kera-

titis. The patient was well nourished, and a careful physical examination revealed nothing more than a few strumous cervical glands.

The corneal condition in this case was viewed as an example of epithelial hyperplasia of cause unknown, but probably also allied to the superficial punctate keratitis of Fuchs. Dr. Posey referred to the recent papers on lesions of the corneal epithelium by Spicer, of London, and Charles, of St. Louis, and referred to the observations of these authors upon the probable action of a toxin upon the nerve endings in eyes so affected. He referred to previous communications by himself in several papers on keratitis disciformis and one on an unusual form of triangular opacity in the superficial layers of the cornea occurring in syphilitic subjects, and recalled that in these papers he gave expression to the belief that the lesions observed in this class of cases, as well as in keratitis disciformis and ribbon-shaped keratitis, could be explained by a change wrought upon the epithelial and subepithelial cells by the fluids of the inflamed uvea in general, but particularly of the substantia propria of the cornea itself.

Dr. Zentmayer said that there was considerable difficulty in classifying corneal lesions when the condition had not been observed from the beginning. He would hesitate to put the second case in the class designated as superficial punctate keratitis. Clinically the case appeared to be one of fascicular keratitis.

Dr. de Schweinitz thought that it would be difficult to state with accuracy what the original lesion had been in the case under consideration, but he thought with Dr. Zentmayer that it was best explained as the result of some form of fascicular keratitis, particularly as scars in the upper part of the cornea seemed to indicate the position of former phlyctenules. He had himself on two occasions seen a somewhat similar lesion, although not so widely or so elaborately produced, in which, in one instance, at least, he had observed it in the stage of a typical fascicular keratitis.

Dr. Posey said that he was not inclined to dispute the views of Drs. Zentmayer and de Schweinitz in regard to the nature of his second case. The changes might, it is true, be of fascicular origin. He had been led to describe the condition as in a way allied to superficial punctate keratitis, not only on account of the appearance of the haze, but also on account of the age of the patient and the absence of acute inflammatory symptoms at any time. In all events, it seems likely that the condition is of epi-

thelial origin, and it is likely that the haze will in course of time clear to a great extent.

Some Unusual Forms of Exudative Choroiditis.

Dr. de Schweinitz related the case history of a patient, an unmarried woman, aged nineteen years, whose left eye exhibited the following conditions: Decided punctate hyalitis, unevenly swollen retinal veins, and covering a large portion of the eye-ground a broad area of greenish white exudate, somewhat knobbed in appearance, over which were scattered numerous glistening masses, probably of cholesterol. This mass of exudate began about 2 disks' diameter from the optic papilla and followed the sweep of the retinal vessels, particularly as they passed downward and outward, as well as upward. There was some fringing of pigment at the margins and particularly on the disk side of the exudate in the macular region scattered small areas of pigment. Beyond the main mass of exudate and separated by a narrow band of healthy retina, far out in the temporal periphery, there was a second mass of greenish white exudate. The general elevation of this exudate was about 2 D, but in some places, particularly in thick masses in the lower and outer periphery, the elevation was as much as 6 D. Although the ophthalmoscopic appearances were those of tuberculosis of the choroid, tuberculin tests were negative, and the most searching general examination failed to find any reason for this somewhat elaborate choroido-retinitis, nor did it respond to any treatment.

Dr. de Schweinitz contrasted his case and the water color which had been made of the ocular lesions with those recently published by Krause and Brückner, in which tuberculin tests had proved the true character of the lesion. He also compared it with Schieck's case of plastic exudative choroiditis, and thought it more nearly resembled the lesions of this case than any other with which he was acquainted. In this case also no etiological factors were discovered.

Dr. de Schweinitz also discussed plastic choroiditis in the neighborhood of the optic disc, not only in its well-known appearances as they have been described originally by Nettleship and later by Hill Griffith, Gradle, and other writers, but also as it has been recently reported by Edmund Jansen, who suggests the name retinochoroiditis juxta papillaris. He described two cases of the affection, one of which was more elaborately produced than those usually recorded, and expressed the opinion that in a certain num-

ber of cases of unilateral optic neuritis the lesion was a plastic choroiditis of this kind. He thought that Gradle's suggestion was probably correct that in these cases the infecting material might come from the sinuses or from some focus of infection, or, as he himself had indicated, from the products of intestinal decomposition, and gain access to this region through the posterior ciliary vessels. In most of the cases syphilis and tuberculosis could be eliminated from the etiological factors.

Dr. Randall said that he felt that another phase of this same condition was occasionally seen, as depicted in Table LVII of v. Jaeger's Atlas, where the retina was raised in a flask-shaped detachment over the juxta-papillary patch of choroiditis. There is no appearance of papillitis in v. Jaeger's picture, but it was present in the earlier stage of one or two cases which he had observed before the retinal detachment occurred. This ruptured, and after the absorption of the exudate which escaped into the vitreous, the retina was seen to have returned to its place and the choroid went on to the atrophic condition common to the cases as described by Dr. de Schweinitz.

Plastic Operation for Cicatricial Ectropion.

Dr. William Zentmayer exhibited photographs of a "Case of Extensive Plastic Operation for the Correction of Cicatricial Ectropion of Both Lids." The deformity had resulted from a burn. A dense cicatrix over the outer fourth of the supra-orbital margin had drawn the upper lid away from the globe without everting it. A scar of varying density surrounded the entire supra-orbital margin, extending for a distance of 2 cm. onto the forehead. A very thick cicatrix involved almost the entire malar region, and extended over the side of the nose beyond the bridge and between the base of the nose and the upper lip, drawing the upper lip up almost to the alæ of the nose. The lower lid was completely ectropionized, the conjunctival surface being on the plane of the cheek and its free border on a line with the tragus. Because contraction was still taking place all of the scar tissue had to be removed. To correct the ectropion of the upper lid a pedicle flap was turned in from the forehead, and the raw surface thus left was grafted. For the lower lid the Hotz method was pursued, with partial success. Subsequently a pedicle flap extending downward from the outer canthus was swung in below the lower lid, and the bared area remaining was covered in by a flap from the sternocleidoid region, where the skin was loose, and the edges of the wound readily brought together.

Finally, the eversion of the upper lip was corrected by using a flap turned in from under the chin. The result so far as correcting the deformities was almost perfect.

Amaurotic Family Idiocy.

Dr. Mary Buchanan (by invitation) showed a case of Amaurotic Family Idiocy. The child, a male, aged sixteen months, first born of Jewish parents, showed signs of this disease at about eleven months. Previously he had been an unusually large, healthy baby, with average intelligence, and was breast fed. Antenatal and family history were negative. The child now looks fat, but is unable to hold its head up, stand or sit alone, and pays no attention to its surroundings except to start at the slightest sound.

The eyes are freely movable, but do not attempt fixation and frequently have a pronounced stare. The pupils are dilated and react sluggishly to light. The media are clear; the disks are white and atrophic and sharply defined; the arteries are much reduced in size. At each macula is the cherry-red spot surrounded by the white, horizontally oval areola about one and one-half disk diameters, characteristic of this disease.

EDWARD A. SHUMWAY, M. D.,

Clerk.

OPHTHALMIC SECTION—ST. LOUIS MEDICAL SOCIETY.

Meeting June 10, 1908.

DR. A. E. EWING, Presiding.

Regeneration of the Cornea.

Dr. Henry L. Wolfner: Mrs. T., aet. 32, presented herself for treatment with gonorrheal ophthalmia O. D.; O. S.; had been enucleated in childhood, and she wore an artificial eye. Socket of O. S. was also infected with gonococci. When first seen there was ulceration of the cornea O. D. which progressed until in seven days entire cornea down to Descomets membrane was destroyed. Dr. Wolfner did not believe there was any hope of preserving vision, and Dr. Alt, who saw the case in consultation, was of the same opinion. Treatment consisted of flushing the eye with a 1:5000 bichloride solution and dusting in xeroform powder. Potassium iodide was given internally. Regeneration set in, and as a final result there is a clear cornea except for a faint cloud just below the center; slight tendency toward kerato-conus and small deposit on anterior capsule. One small posterior synechia. Vision. 14/120.

DISCUSSION.

Dr. Post thought, that possibly the elimination of the iodine in conjunction with the xeroform had something to do with the clearing up of the cornea.

Dr. Williamson asked how long this regeneration process continued.

Dr. Wolfner replied that the cornea was practically regenerated within six weeks or two months, but it was not perfectly clear at first. It continued to clear up until about a year ago. Since then there had been no change.

Cataract Operation Complicated by Dacryocystitis.

Dr. Post reported a successful cataract extraction in a case in which dacryocystitis had long existed. The danger of operating in such cases had been impressed on Dr. Post many years ago by watching a most successful operator perform an extraction on an eye in which a small particle of pus was present at the inner canthus—the eye being subsequently lost—and when his present case, a woman, sixty-four years old, presented herself to him with well-marked cataract and dacryocystitis, O. D., and commencing cataract O. S., he had to consider seriously the best surgical measures to pursue. He considered tying the puncta, destroying them with galvano-cautery, and extirpation of the sac. When first seen there was considerable discharge from the lachrymal sac into the conjunctival sac, and also some discharge through a lachrymal fistula onto the face. Cultures from this discharge showed only a scant growth of encapsulated pneumococci.

An effort was made before operation to relieve this condition. The upper punctum was slit and Bowman probes up to No. 3 passed into the nose. Injection of argyrol, 25 per cent, and normal saline solution passed out through the fistula. This treatment was continued for two months without any improvement, and the patient went home. Eight months later she demanded operative relief. Obliteration of the lachrymal sac seemed too severe an operation for a patient so feeble, so the canaliculi was ligated. Daily cultures made from the contents of the conjunctival sac showed staphylococcus albus. After cleansing the conjunctival sac as thoroughly as possible the lens was extracted with iridectomy through an incision in the upper portion of the cornea, care being taken to leave a large conjunctival flap. The sac was then washed out with normal saline solution and filled with 25 per cent solution of argyrol. Both eyes were then covered with absorbent cot-

ton pad, saturated in 1:5000 bichloride solution, and the whole held in place with a Ring mask. As soon as possible washing out of the lachrymal sac, night and morning, was instituted. Final visual result, 20/30.

Dr. Post called attention to a paper by Dr. Bull, in which he stated that in the presence of suppurative disease of the lachrymal passages, all operations on the eyeball are positively contra-indicated. The lachrymal sac must be excised, the puncta obliterated by the galvano cautery before any operation on the eyeball can be undertaken. Dr. Post did not entirely agree with Dr. Bull in this statement. He thought cases might arise in which such radical measures were inadvisable.

Dr. Post believed the two factors producing the good result in his case were, first, ligation of the canaliculi, and, second, the fistulous condition of the lachrymal sac which allowed drainage downward. Probably the best way of ligating the canaliculi is to pass a very fine probe into the canaliculus, then, having passed a needle carrying the ligature through the lid, the ligature is tied down on probe, the probe withdrawn and the ligature tied.

DISCUSSION.

Dr. Meyer Wiener reported a case almost the counterpart of Dr. Post's. The patient, a man eighty-one years old, had a dacryocystitis and cataract. The other eye had been operated on for cataract a year before with excellent result, but six months later he had lost the eye from an attack of acute glaucoma. Dr. Wiener treated the dacryocystitis and tried to get rid of the pus, but did not altogether succeed. The man was weak, he needed to get out into the fresh air and was unable to do so except when he could find some one to accompany him. For this reason it seemed that something must be done. Both puncta were tied off with black silk thread and two or three days later an extraction of the lens in the capsule was performed. The eye healed without any complication. The resulting vision was 14/30. About the tenth or eleventh day after the operation pus began to form again, but fortunately it did not infect the wound and the result was a very good eye.

Dr. Llewellyn Williamson thought that in a case of this kind, while the ligation of the puncta was the simplest procedure, an excision of the sac should be seriously considered, for there was the possibility of an overflow of pus into the conjunctival sac, and he could think of nothing more disastrous than an infection or even a corneal ulcer in such a case, especially where the patient had

but one eye left. For this reason he considered an excision of the sac the wisest procedure in cases of this kind.

Dr. Post said that in Dr. Wiener's case and in his own an extirpation of the sac would have to be considered very seriously before attempting it. His patient had had asthma and was very nervous and it was questionable whether she would have come through such an operation, although, of course, there was on the other hand the possibility of blindness to be considered.

A New Knife for Dividing Membranes Obstructing the Pupil After Cataract Operations.

Dr. M. H. Post: Having sometimes experienced considerable difficulty in attempting to divide obstructing membranes of the pupil with the ordinary knife-needle. Dr. Post had devised a knife for this purpose which he presented to the section.

The blade, 6 m.m. long and $1\frac{1}{4}$ m.m. wide at its widest part, about 3 m.m. from the point, has its back straight and dull, and a sharply rounded cutting edge extending its entire length. The shank is cylindrical and of a diameter sufficient to prevent the escape of aqueous during the operation. The width of the blade is sufficient to admit of its cutting edge being ground very sharp, which is important.

DISCUSSION.

Dr. A. E. Ewing said that he had made it a rule with this new instrument to go further into the cornea than it had been his custom to do formerly when he had used the Knapp straight needle and the sickle needle. With this instrument he went in near the iris with a slow sawing movement and usually the result was a fairly good opening. After passing in the instrument one could cut entirely across the pupil, then turn the knife down and passing over it gave one the whole cutting length, 3 mm. or 4 mm., and when finished the opening would be 6 mm. or 7 mm. long. More than that, the needle so filled the wound that the aqueous could not escape, and one might turn the needle and make a cut from above or below as desired. Within the last two or three weeks he had divided two tough membranes, cut through an atrophic lens and separated a very tough membrane from the iris. In this case he had separated it from the iris on the temporal side the full length of the knife, then caught the membrane with the hook and drew it entirely through the wound and cut it off with the scissors. The result was a beautifully clear pupil. After passing the knife on the flat, it should be turned over. In

his first case, an exceedingly tough membrane, the patient acted badly and jumped against the needle, and he had made the mistake of not turning the knife and as a result cut through the iris as the knife was withdrawn. One should bear in mind that the knife must be turned back so as to have the width of the knife in the plane of the iris. In all the cases where he had used this knife he had gotten a perfect result, a large opening, a beautifully clear pupil. In the case of the atrophied lens he had thought he could see what this knife would do. Entering from the temporal side, the knife was passed into the lens and a perfectly clear opening was the result. As he failed to get quite the opening desired on withdrawing the knife, he had gone in a second time. The eye was now perfectly quiet and getting well.

Dr. Alt, after seeing Dr. Post's knife, had had some made, although he believed his had a slightly different curve than appeared in the drawing by Dr. Post. It worked exceedingly well, because the knife was extremely sharp. It cut splendidly and the opening in the cornea was perfectly blocked so that there was no escape of the aqueous.

Dr. Wiener thought that the operation of capsulotomy was a very serious one. The best results that he and Dr. Wolfner had secured had been with the Ziegler operation, making a V-shaped incision with a sawing movement. He believed this sawing movement was the secret of getting through tough membranes.

Dr. Post Demonstrated a Mouth Bib of Gauze.

Dr. Post demonstrated a mouth bib of gauze.

DISCUSSION.

Dr. Alt said that since February, when a patient upon whom he had operated developed an infection at the same time that he had developed a tonsilitis, bacteriological examination showing both to be due to the pneumococcus, he had been using a bib. He had found that with the glasses it was in his way, as he stooped over the patient his breath dimmed the glass. But he would never again operate without a bib. He thought that a piece of sterile gauze used once and thrown away better than a mask, to be used over and over again.

Dr. Ernst Saxl said that covers for the mouth were not of recent date. The most practical one he had seen was one used in Vienna for seven or eight years. It looked like an oval chloroform mask. It fitted over the nose at an angle, like a chloroform

mask, leaving the eyes free, and it fastened with spectacle hooks over the ears. It was simple, easily sterilized and easily attached.

LEWELLYN WILLIMSON, M. D.,

Section Editor.

OPHTHALMIC SECTION, ST. LOUIS MEDICAL SOCIETY.

Meeting May 14, 1908. Dr. A. E. Ewing, presiding.

Removal of a Steel Fragment from the Vitreous.

By Dr. J. F. Shoemaker. Presentation of patient and specimen. Dr. Shoemaker showed a piece of steel, which by means of the large magnet had been withdrawn from the vitreous through the lens and removed through the original wound. When using the magnet the fragment had dropped into the lower part of the anterior chamber, and Dr. Shoemaker had to consider whether it would be better surgery to make a corneal section and withdraw of the large magnet had been withdrawn from the vitreous through it that way or attempt to draw it through the original wound. He chose the latter course.

DISCUSSION.

Dr. John Green, Jr.: He stated that one aspect of the case presented by Dr. Shoemaker, namely, the likelihood of injury to Descemet's membrane from the metallic fragment striking forcibly against the posterior surface of the cornea, reminded him of a case seen about two years ago. A patient presented himself with a cataractous lens in which a fragment of steel was imbedded. The giant magnet was first used with the idea of loosening, but not dislodging the fragment from its lenticular bed. However, at the first application the fragment sprang out of the lens and dropped into the anterior chamber. An incision through the cornea permitted the introduction of the hand magnet, and the fragment was drawn up toward the wound, but fell back into the space behind the iris. After repeated attempts, the fragment was finally withdrawn. In the course of manipulations it was dashed repeatedly against Descemet's membrane. The wound healed promptly, and he could not convince himself that Descemet's membrane had sustained any noteworthy damage.

Dr. Carl Barch thought that in most of these cases it was safer to make a corneal section. In an effort to extract through the original wound, two factors must be taken into consideration: (1) It was not advisable unless the patient was seen shortly after the injury, because of the adhesions which might have resulted;

and (2) It must depend upon the size of the foreign body. In the case of a foreign body of irregular formation it was more dangerous to remove it through the wound than to make a corneal section.

A Further Report on a Case of Quadrant Anopsia.

Presented to the section at the November meeting by Dr. Llewellyn Williamson. Dr. Williamson recalled to the memory of the section the case of quadrant anopsia, presented by him at the November meeting, at which time the visual defect involved the entire lower and outer part of the left field from the 75 to the 180 meridian, and the entire lower inner part of the right field from the 75 to the 180 meridian. The defects as shown by the perimeter at that time were homonymous and strikingly regular, the extent of the scotoma being absolutely the same in both eyes. The cause of this defect had been diagnosed at that time as a hemorrhage in the region of the calcarine fissure on the right side. That the diagnosis was probably correct, and that there had been an absorption of the hemorrhage to a large extent, was shown by visual charts now presented.

There is still a homonymous defect, regular and of equal size in each field, but involving a much smaller area than formerly. Instead of the complete quadrant defect extending from the 75 to 180 meridian and reaching well into the fixation point, the defect at present is only a slight V extending from the 75 to the 105 meridian and extending no nearer than 30 degrees to the fixation point.

The man himself reports that his vision is very much improved and that the peculiar feature which directed him to an oculist, that of seeing half a word or object looked at, has entirely disappeared.

This supplementary report is made the section because it is interesting that a hemorrhage of this kind should be so completely absorbed without leaving any permanent traces of injury behind.

DISCUSSION.

Dr. Barch thought cases of this kind exceedingly interesting. There were not so many on record and the members of the section should be grateful to Dr. Williamson for showing the second field of vision. It would be interesting to see another field for a few months.

A Piece of Steel Removed from the Vitreous by Means of the Hand-Magnet.

By Dr. Henry Muetze. The patient, a railroad laborer, 40

years of age, presented himself April 25, 1908. On April 21, 1908, in holding down a rail while it was being cut, something suddenly struck him in the left eye, causing immediate blindness. Inspection revealed a perforating horizontal cut, extending from the center of the cornea outwards to the limbus, hypopyon and traumatic cataract. Vision was completely abolished.

The missile, a short piece of steel weighing about a grain, was easily located in the vitreous by the X-ray and extracted under ether anaesthesia by the hand-magnet, through a scleral incision between the superior and external recti muscles. As on previous occasions, some difficulty had been experienced in extricating the foreign body from the wound. A cut of an aluminum instrument was shown, by the introduction of which extraction would be greatly facilitated.

DISCUSSION.

Dr. Barck believed that in all instances where a foreign body entered through the sclera and the lens was intact, that the giant magnet was contra-indicated. A corneal section would do less harm. He had tried a number of different instruments to keep the scleral wound open, but this could best be done by the use of small surgical forceps. The Graefe knife was a poor instrument for a scleral section. The sclera was yielding and it was difficult to enlarge the wound with this instrument. He used an instrument about twice as wide as the Graefe knife. In the last case operated upon he had used this knife and found afterward that he had considerably more difficulty than he had ever had with the wide knife. He used the same knife for a posterior sclerotomy. He went directly through with the knife and kept the wound open with the forceps. It might be of advantage to have the forceps made of aluminum.

A Case of Traumatic Cataract with Retention of Foreign Body in Lens for $13\frac{1}{4}$ Years.

By Dr. Henry Muetze. In October, 1904, the patient, while striking a cotter pin with a hammer, was struck in the eye, sight being suddenly obscured. Was treated for a few weeks and then resumed work. When seen by writer, December, 1904, a very small scar in the inner part of the superior exterior quadrant of the cornea and traumatic cataract were found. Vision = fingers at 12 feet. Refused X-ray examination and possible operation. Not seen again until April, 1906, when he presented himself suffering from a contusion of the right eyeball. Vision, O. S., was then hand-movements at 6 inches with good light production. Con-

sented to be operated upon and flap extraction with iridectomy was performed June, 1906. On sixth day after operation violent iritis set in, which subsided within about a week under appropriate treatment. A dark substance like a prolapsed iris was then noticed about the center of the operation scar. Eye cocainized and the greater part of brown mass, which felt hard to touch, removed by a sharp instrument. Loss of aqueous prevented complete removal until several days later. The substance was not affected by the magnet and the patient thought it might have been a small piece of coal clinging to the cotter pin at the time he struck it.

Undoubtedly at the time of the injury it became imbedded in the lens and was brushed off by the inner lip of the wound during the extraction of the cataractous lens, causing the inflammatory reaction referred to. The eye healed rapidly and the patient did not report again until a week ago, almost two years after the operation. At present the eyeball has normal tension, a good key-hole pupil and with proper lenses distance vision is 10/35 and near vision Sn. 0.75 at 6 inches.

Unilateral Dacryoadenitis of Metastatic Origin.

By Dr. Meyer Wiener. Presentation of patient. Dr. Wiener presented a patient, aged 19, family and previous history good. About a year ago had contractive gonorrhea with constant discharge, varying in degree since. Past three weeks has had practically no discharge from urethra. Few days after discharge stopped a swelling appeared over the upper and outer part of right eye. Lids swollen, oedematous and tender, could not open eye.

Examination of patient May 6 showed marked swelling of lids in region of lachrymal glands. Swelling around lids for some distance, hard oedematous. A peculiar swollen and red area over the right temple about the size of a dollar, somewhat tender on pressure. Pre-auricular and sub-maxillary gland enlarged, no enlargement of sclerical glands. Conjunctiva swollen and so chemotic as to almost cover cornea; on eversion a large, sharp, bluish mass presented, toward the upper and outer side. Periosteum at the upper orbital margin somewhat infiltrated. Temperature 99, pulse 82, respiration 24.

Diagnosis of acute dacryoadnitis due to infection from gonorrheal toxines was made and patient put to bed after warm bath and dose of magnesium sulphate. Hot compresses applied over eye after three hours, and after each application a 10% ichthyol ointment was used. Daily improvement until May 14, when swelling had disappeared and patient was discharged.

DISCUSSION.

Dr. M. H. Post had had two of these cases of inflammation of the lachrymal glands. The first of these he had seen many years ago and at that time he had tried to find something about the condition, but it was rarely mentioned. The patient was one of his friends and suffered considerably. The case was treated with warm applications. There was a formation of pus, which had to be removed through the skin. Within the last six months another case had come to him with a similar condition, and dreading a similar result, he had had the patient remain at home and keep quiet. In this case he had used cold applications on the swelling. The pain was not so severe and it discharged through the conjunctival sac, followed by complete recovery. The result under cold applications was far better than the result under hot applications. In neither case was there any history of venereal infection.

Dr. C. Loeb had had a case, the patient being a boy of twelve years. There was extreme swelling of the lid. The next day it was worse and there was hyperemia of the conjunctiva and just above the external canthus was a hard mass. A 10% ichthyol salve was used and in four days the child was comparatively comfortable.

Dr. Green had seen a case at the Female Hospital, the patient having been sent in with a diagnosis of gonorrheal bilateral conjunctivitis. There was a distinct swelling in the region of both lachrymal glands. The patient six months before had contracted gonorrhea which had not been treated. A few months later there developed an arthritis and the patient was laid up for several weeks. Subsequently the patient had another attack of gonorrhea. The ocular condition was a metastatic gonorrheal dacryoadenitis. The case was treated with hot compresses and in the course of a week was so far recovered as to be able to leave the hospital.

The whole subject of metastatic dacryoadenitis, he said, had been very thoroughly discussed at the meeting of the American Medical Association in 1907 and the general opinion seemed to be that these cases were self limiting.

Dr. Wiener said that he had used ichthyol ointment and hot applications. That was all that was used and there was no supuration.

The Pathological Aspect of Cerebral Decompression in Choked Disc and the Neuro-Retinitis of Bright's Disease.

By Dr. N. M. Semple. Attention is called to Dr. Cushing's address before the St. Louis Medical Society, delivered in Decem-

ber of last year. The part especially referred to was that reporting, very briefly, the case of a young girl, on whom a sub-temporal decompression was performed. The condition of the patient was one of profound uraemia with marked cerebral manifestations. There was also intense swelling of both optic discs, together with what was termed a typical "retinitis albumenrica." The operation was determined upon largely on account of the latter condition. The results were good temporarily—a cessation of the headache and vomiting, and extraordinary improvement in the neuro-retinitis.

Reference is also made to the experimental work of Drs. Cushing and Bordley, of Johns Hopkins University, carried out with the view of proving the pathological identity of the two conditions, choked disc and the neuro-retinitis albumenrica, thereby justifying sub-temporal decompression in the latter condition.

(A detailed account of these experiments is to be found in the transaction of the Joint Session on Ophthalmology and Mental and Nervous Diseases at the meeting of the American Medical Association, Chicago, 1908.)

In order to study the question raised by the above investigation, a brief reference is made to the present conception among pathologists of the two conditions. For the pathology of choked disc, attention is called to a series of articles by Kampherstein from the clinic of Professor Uthoff in Breslau, which appeared in the *Klinische Monatsblätter Augenheilkunde* during 1904 and 1905. From the microscopical study of fifty-five years, the author comes to the conclusion that, in most cases, the pathogenesis of choked disc is to be found in an oedema originating in the brain, from there extending along the sheaths of the optic nerve into the papilla, where it causes the acute inflammatory reaction, occurring at this point largely on account of the hard scleral ring and the resistant inelastic lamina cribrosa. This is the conception of the causation of choked disc accepted by Cushing in the article referred to, appearing in the October number of the *American Journal of the Medical Sciences*.

For the pathology of retinitis albumenrica, reference is made to the work of the writer as published in the March number of the *American Journal of Ophthalmology*. The condition is, as a rule, confined to the macular area of the retina, where profound changes may occur, yet associated with practically no involvement of the nerve head. The changes consist of an oedema involving

the entire thickness of the retina, with deposits of masses of exudate of a sero-fibrinous nature, eventually undergoing hyaline metamorphosis. This condition may involve the entire macular area, without changes of any marked degree occurring in the disc. That such a condition could be due to intra-cranial pressure, resulting in a damming back of the cerebro-spinal fluid along the meningeal sheath, the optic nerve seems untenable. According to the conception of the causation of choked disc as given above, such as damming back would first result in an intense swelling and oedema of the disc.

This is often not the case in the severest forms of retinitis albumenurica. That the oedema of pressure (choked disc) may eventually result in deposits of fibrin and hyaline in the surrounding retina is beyond doubt. But the pathogenesis of the two conditions is entirely different. If uremia with cerebral complications occurs in the course of a previously existing Bright's disease with retinitis (as in Cushing's case), then a true choked disc may be added to the picture, but from the standpoint of its pathogenesis especially, should be differentiated from the pre-existing retinitis. When such a condition occurs the serious danger to sight and the intense suffering of the patient surely justifies decompression.

DISCUSSION.

Dr. Barek said that so far as he knew the first experiments were made along this line by his old teacher, Professor Manz of Freiberg. He was the first to demonstrate that this condition extended to the sheath of the optic nerve by injecting fluid into the arachnoidal space of animals. He at that time showed that the condition was mainly an oedema. Afterwards the theory that it was an inflammatory condition was advanced. The extension to the sheath led to interference to relieve the condition by an incision in the sheath. It was surprising how quickly the choked disc disappeared after the withdrawal of the cerebro-spinal fluid.

In the case of a lady with choked disc of about 4.5 diopters, removal of a piece of parietal bone revealed a diffuse mass and about a handful was scooped out. The lady recovered and a few weeks afterward the choked disc had entirely disappeared. She was perfectly healthy for several years, but later an atrophy of the optic nerve set in. The conditions in retinitis albumenurica and choked disc were microscopically entirely different, and until

more was known about the causes of nephritis it would be difficult to make any definite statements.

Dr. Green said that Dr. DeSchweinitz took an optimistic view of the decompressive operation in the matter of saving sight. Dr. Green had observed a number of cases in which this operation had been performed and his feelings were that the optimistic views of DeSchweinitz's were perhaps too optimistic. Where atrophy had begun, the best to be hoped for was a cessation of the process, although DeSchweinitz had reported cases in which there had been sudden restoration of vision.

Dr. W. W. Graves had hoped that Dr. Semple would tell them something about the differentiation clinically between Neuro-Retinitis from choked disc. He had been told that it was sometimes difficult to make this differential diagnosis and Cushing had said that this differentiation could not be made, but Cushing was not an ophthalmologist. Dr. Graves had recently examined a patient where the diagnosis hinged upon the possibility of making this differentiation. Cerebellar tumor had been diagnosed and there was a staggering gait and head-aches, but there had been no vomiting. The opinion given by the ophthalmologist was that it was undoubtedly choked disc and the gentleman who had seen the case before Dr. Graves, thought there could be no doubt about it being a brain tumor and advised a decompressive operation. While this patient had the symptoms of tumor, not a single motor cranial nerve showed the slightest involvement. The case was seen by Dr. Williamson and Dr. Green and the consensus of opinion was that it was a retinitis with choked disc. Dr. Graves thought that the symptoms could not be accounted for on the basis of intra-cranial pressure, and that it would be impossible on the basis of the neurological symptoms to consider it a case of brain tumor. Yet this woman had been urged to submit to a decompressive operation.

Great care should be exercised in making the differential diagnosis, for however valuable a decompressive operation might be, one would not care to subject a patient with a neuro-retinitis to such a procedure. It was undesirable to subject a patient to such an operation where a lumbar puncture would do as well. Where a tumor was growing from the cerebellum the sudden relief from pressure by lumbar puncture might produce interference with the respiratory center and result in sudden death. So from a clinical standpoint it was very important to make the differential diagnosis from the fact that the therapy must be founded directly on the diagnosis.

DISCUSSION.—Dr. Bliss said that the first thing the neurologist did in these cases was to call on the ophthalmologist for help, as their training was not sufficient to enable them to recognize the condition. He had seen the case that Cushing operated on last fall. The girl was about seventeen years old. His impression was that the nervous symptoms were almost identical with those produced by ordinary cerebro-spinal pressure. But the girl got very much better and the condition improved immediately following the operation. Lumbar puncture was done subsequently. In the case of a patient seen by Dr. Semple and Dr. Alt, both of whom reported a marked swelling, a lumbar puncture was done immediately after the bone was removed. The pressure was very great and there was almost immediate relief. In a few days the pulse rose from 40 to 68 or 70. In ten days the wound had healed and a second lumbar puncture was done and still later a third; and there had been a continuous improvement in the fundus. Apart from the symptoms of pain, where there was no localizing symptoms, a careful watching of the fundus made it possible to forecast the condition and be ready to relieve the pressure when it came.

Dr. Semple said that the changes in the fundus in the case mentioned by Dr. Bliss was very interesting. There had been at first merely a diffuse oedema of the disc with a little swelling, but the day before the operation, there was a typical choked disc. There was oedema giving a striated appearance along the course of the blood-vessels, and after the operation the swelling and oedema of the disc rapidly decreased until now there was merely the appearance of a slight hyperemia, although in the retina numerous hemorrhagic spots remained, but less in extent than at the time of operation. The veins had regained much of their normal appearance and the vision was now normal.

Keratitis Punctata Superficialis.

By Dr. Meyer Wiener. On Nov. 5, 1907. Miss B., age 21 years, came to me complaining of a sense of irritation in the right eye, and of constant tearing. She was wearing O. D.+0.75 cyl. ax. 0°, O. S.+0.50 cyl. ax. 75°, prescribed by me about seven months before. Visual acuity: O. D. 14/15; O. S. 14/12; whereas it had been 14/12 in either eye at the time glasses were prescribed. There was slight injection of bulbar conjunctiva O. D., with a little roughness of palpebral conjunctiva of upper lid. On close inspection with oblique illumination, cornea was seen to be studded with numerous small, round, grayish dots about 30 in

number, averaging about 1 mm. or less in diameter and raised above the surface of the cornea. These could only be seen by oblique illumination or by most careful inspection in daylight.

These spots were located mostly in the center of the cornea and seemed to lie in the most superficial layers, involving only the epithelium or the epithelium and most superficial part of Bowman's membrane. The spots were not sufficiently opaque to interfere at all with a view of the fundus which appeared normal. (The left eye was in every way normal.) The eye was cocainized and scrapings taken from a couple of these little elevations and one gelatine and one agar tube inoculated. The tubes remained sterile.

An antiseptic solution was given the patient to drop in the eye at home, and an antiseptic powder was dusted into the eye, at first daily and then less often. Also cold applications used to reduce the conjunctival irritation.

The elevated spots seemed to disappear rapidly enough but left grayish dots which yielded more slowly to treatment. On January 3, '08, scarcely a trace of these dots could be seen, and on January 18, when the patient was again seen, the cornea was perfectly clear with a visual acuity of 14/12.

This case answers the description of those cases reported by Major Herbert of Bombay, more closely than the superficial punctate keratitis described by Fuchs. Also those of Herbert were mostly in young girls, as in this case, and mostly monocular.

It must be rare in these parts as neither my associate, Dr. Wolfner, in his wide experience, nor myself, had ever seen a case answering exactly this description.

DISCUSSION.—Dr. Muetze had seen three cases of true punctate keratitis, one, a young peasant girl whom he saw in 1895, got well in about four weeks. The second case he had seen regularly every year for the last four years. The right eye became affected about the same time each year, and each time there was also an attack of influenza. The third patient was a young girl. The attack was milder than the first case and the patient got well in about four weeks. This condition always left the cornea intact, while in true herpetic conditions the cornea was permanently affected. This condition was below Bowman's membrane, while the herpetic condition always affected Bowman's membrane. The second case mentioned was very severe, the patient suffering intensely during every attack. The condition was very rare in this country.

Dr. Luedde had seen one case which at times was superficial; and the spots would break upon the surface, but at other times the spots were deeper in the epithelial layer. There seemed to have been an iritis. The condition had existed a year or two. There was some adherence of the iris to the lens. Under treatment the vision improved somewhat. One little spot came to the surface and smears were made, but nothing came of the microscopic examination. There was a history of luetic taint in the family. Under one-fourth grain doses of bichloride of mercury the patient improved and the case seemed to be going on to a cure. There was no evidence of cyclitis and no involvement of Bowman's membrane.

Dr. John Green, Jr., asked if the elevations were connected by lines, as in all other respects the case resembled one of malarial keratitis.

Dr. Wiener, in conclusion, said that one reason why he had reported this case aside from its rarity, was the thought that perhaps instead of its being a rare condition it merely seemed to be so. The vision never went below 14/20 and there was only lachrymation and occasionally the feeling of a foreign body.

The spots could be seen most clearly when they were getting well. According to DeSchweinitz, in the cases of punctate keratitis reported by him, the lesions were sometimes connected by small lines, but in his case they were not connected. If these cases were so common in India, it would seem that more of them would be seen here.

LLEWELLYN WILLIAMSON, M. D.

Section Editor.

AUSTRALIAN MEDICAL CONGRESS.

The Eighth Session of the Australasian Medical Congress was held in Melbourne during the week ending October 24th, 1908.

The number of members of the Congress was about 800 and the attendance at the Ophthalmological Section was at times as much as thirty. The proceedings of the section were opened by the President, Dr. Lockhart Gibson (Brisbane, Queensland), who opened a discussion on the subject of Syphilis in relation to eye diseases. By arrangement, the proceedings of nearly all the sections of the Congress were opened in a similar way and a speaker from each section was appointed to represent the views of the section at a full meeting of Congress, which was held on the last

day of the session. Dr. Gibson emphasized the unique opportunities afforded to the ophthalmologist of diagnosing syphilis and of observing the effects of treatment. He dwelt on its wide-spread character in all civilized countries and more especially on the fact that advanced changes may and do frequently occur without any clinical signs whatsoever. The members of the section were practically unanimous in the opinion that with its remote manifestations, it is responsible for more eye disease than any other cause, errors of refraction excepted.

The afternoon of the first day was devoted to an account by Dr. A. L. Kenny (Melbourne, Victoria), of the various eye clinics of the world which he had visited during a recent tour extending over some eighteen months. The lecture was copiously illustrated by lantern slides. These were singularly interesting to the Melbourne Ophthalmologists, since the Victorian Eye & Ear Hospital has just been reconstructed and modernized. This was followed by another description by Dr. Lindsay Miller (Hobart, Tasmania), of the Egyptian Traveling Ophthalmic Hospitals. There is probably no country in the world, outside of Egypt, in which trachoma is so prevalent as in Australia, and Dr. Miller's description of the difficulties attending the work amongst the Fellahin was much appreciated. On the third day of the session, Dr. Odillo Maher (Sydney, N. S. Wales) introduced a discussion on the treatment of glaucoma. Both Dr. Maher and the section were agreed that the earlier iridectomy was done, the better. In advanced cases, however, Dr. Maher has had considerable success in the utilisation of a cystoid cicatrix. This result he obtained by leaving a portion of the iris in the wound for six or seven days after operation. As in all meetings of Australasian ophthalmologists, the treatment of trachoma occupied a prominent part of the proceedings, and Dr. Gibson's modification of Anagastakis operation for entropion, and Dr. Maher's modification of Von Burow's operation, caused lengthy discussion.

The section visited the new Victorian Eye & Ear Hospital. This hospital is now accommodated with 83 beds, two operating theaters, and very extensive out-patient accommodation. It is excellently lighted and ventilated, the windows being of the "Magic balance" type. The heating is effected by hot water radiators and a double electrical service is supplied, a 200 volt continuous current for motor purposes and for using the giant magnet. In connection with the out-patient room, a dark room has been pro-

vided, and has been so constructed that some light and air can be let in when the room is not in use. A small clinical laboratory and instrument room is to be found in an adjoining room. Provision is made for the sterilization of the clothes of the patients with formal aldehyde. A sterilizing room for both operating room and the hospital in general is being constructed. It is now proposed to build a house for the accommodation of the matron and nurses, with 12 sleeping rooms and ample sitting room conveniences. The staff of the hospital numbers 12, including surgeons, assistant surgeons and clinical assistants, the latter being regulated in number. The section further witnessed in the Eye & Ear Hospital a demonstration of ophthalmic knife sharpening given by Mr. Gallagher, of Melbourne. On subsequent days, the St. Vincent's Hospital was visited and demonstrations given by Dr. A. L. Kenny (Melbourne, Victoria) and Dr. E. Ryan (Melbourne).

The general meeting of the Congress on the subject of Syphilis was very impressive, and the resolution finally carried read as follows: "That syphilis is responsible for enormous injury to mankind, and that restrictive and remedial measures directed against it deserve the most serious consideration."

The social side of the Congress was well developed. The various state functions were particularly brilliant and the members of the Congress managed to get through a good deal of work and also to enjoy themselves immensely.

The details of the various papers will appear in the proceedings to be published shortly.

COLORADO OPHTHALMOLOGICAL SOCIETY.

Meeting of October 10, 1908, in Denver.

DR. EDWARD JACKSON, Presiding.

Foreign Body in the Eye.

Dr. Melville Black presented a man, aged 52, who five months before had received a glancing shot on the left supraorbital ridge from a 30-30 rifle, fired at a distance of 20 feet. The bullet was a steel jacketed projectile and the powder was smokeless. He fell to the ground, stunned for a few moments. After the blood was washed from his face he noticed that the vision of his left eye was slightly damaged. He gave it no attention, however, and the treatment was all directed to the supraorbital skin wound. He had no pain in the eye, but the vision was gradually reduced to light

perception. There remained no evidence of fracture of the supraorbital margin of the orbit, and the skin wound left little or no scar. In the superior temporal quadrant of the cornea a small scar was noticeable, and just underneath it there was a small hole in the iris, and the lens was totally opaque. The cornea showed a slightly milky appearance and the tension was about plus 1. A radiograph, taken the day before the patient was presented, indicated the presence of a foreign body in the eye and three smaller foreign bodies back of the eye in the orbit.

Dr. Black thought it was an interesting speculation as to how these foreign bodies got into their present position, the most likely presumption being that a piece of steel jacketing which covered the projectile was torn loose during its passage through the rifle and, dropping a little lower than the bullet, struck the eye. Or he had been told by Col. LeGard, that it was possible for particles of lead to fly from a bullet; and it might be that in this case particles of lead or steel jacketing penetrated the eye and orbit. He also had learned that it was possible for some forms of smokeless powder to penetrate blotting paper, fired at a distance of 12 feet.

DISCUSSION.

Dr. Black had advised enucleation. Dr. Stevens mentioned the removal of a piece of smokeless powder, $3\frac{1}{2}$ mm. long by 2 mm. square, from an eye in which pain followed the explosion of a 30-30 cartridge.

Dr. Conant recalled the case of a miner with a particle of coal lodged in and penetrating the cornea. The part penetrating into the anterior chamber, broke off and fell to the bottom of the chamber, during efforts of removal. During observation of the eye for two months following, no trouble arose.

Double Ophthalmoplegia.

Dr. D. A. Strickler showed a man, aged 50, with paralysis of all the external muscles of both eyes, of 17 years' standing and of unknown causation. The onset had been sudden, the paralysis complete in a few months, and no change had occurred until the past two months. Then, following a night of severe headache, chemosis appeared in each eye; the right being very edematous; the left slightly so. V.=20/40 with glasses, in each eye. Retinitis existed, with marked albuminuria, granular casts, and blood pressure of 195 mm.

The patient was a heavy eater and suffered from intestinal toxemia.

DISCUSSION.

Dr. Stevens recalled a case in which there was only slight upward and downward motion in the right eye, and slight inward and outward movement in the left. The pupils reacted to light. Chemosis was marked.

Dr. Jackson spoke of a case of 20 years' standing, following sunstroke, in which 5 degrees prism, base out, was required for distance, and 5 degrees prism base in, for near. He also mentioned a case which he had lately observed in which there was no convergence.

Tubercular Uveitis.

A case of relapsing uveitis, with old iritic adhesions, in a woman of twenty-three, was presented by Dr. Strickler, under whose care she had just come.

R. V. = 20/40 partly cum —0.50 \subset —2.00 cyl. ax. 45 degrees.

L. V. = light perception only, on account of cataract. Two years previous she had consulted Dr. Jackson, stating that she had been under the care of oculists for six years on account of these adhesions, and that sight had varied greatly, suddenly diminishing, even to bare light perception, followed by slow improvement. The eye-balls were never red or painful, although laceration accompanied close work. Vision in 1906: R. 4/20 plus cum. —2.50 cyl. ax. 15 degrees = 4/9 plus. L. 2/60, cum. —3.00 cyl. ax. 170° = 4/9 plus. The pupillary margins were largely held by organized exudate, the vitreous was very cloudy, and the fundus details were not seen. In the succeeding six months Dr. Jackson gave potassium iodide and applied dionin, during which time a large area of the right pupil became clear.

DISCUSSION.

Dr. Jackson now considered this case one of tubercular uveitis; recalling a similar case in which the use of Calmette's reaction in the blind eye had given a positive result, and the administration of tuberculin had proved beneficial. In the case presented he would employ some test for tuberculosis.

Dr. Coover recalled a child of four years in which both pupils were bound by adhesions, the right lens being clear, the left cataractous. The general health improved greatly under treatment by cod liver oil. He would do iridectomy in left (cataractous) eye of the case under consideration.

Dr. Walker advocated iridectomy and tubercular treatment. Dr. Ringle mentioned three cases of annular posterior synechia, with no history of pain, and thought by him to be of rheumatic origin.

Dr. Black thought the pendulum was swinging to the side of tubercular ocular affections. He considered this case was tubercular, but would not attribute too many ocular affections to tuberculosis.

Corneal Deposit Following Old Trauma and Recent Tuberculosis.

Dr. D. H. Coover showed a man of thirty-six, who had lately consulted him, stating that only in the previous 48 hours had he noticed a white deposit in the right cornea. The outer part of this deposit was a filmy infiltration, and the deeper portions resembled fish spawn in appearance, was triangular in shape, and dense at its base. The fundus reflex was visible. Dionin and pilocarpin were first used. Then Calmette's ophthalmo-reaction was used three times, in $\frac{1}{2}$ or 1% strength; the typical reaction occurring only after its third application. The temperature was found to be 99.4 daily for many days, and the family history tubercular. Once a week for four weeks tuberculin was administered, followed by gain in weight and slow, but gradual, absorption of the deposit.

Dr. Jackson had seen this patient five years before, when he noted an aphakic eye which had followed a severe blow and resulting ocular inflammation, occurring eight years before. There had been a recurrence of inflammation lasting a week, one year before consulting Dr. Jackson, and the patient stated that the sight was then even worse than the dimness of vision that had existed in the right eye as long as he could remember.

The central portion of the cornea was quite hazy, the anterior chamber deep, the iris flat and slightly degenerated, with thin gray shreds of membrane hanging from the temporal margin of a 3mm. pupil, which was slightly irregular and did not enlarge under a mydriatic. There was a faint fundus reflex. Dionin 1:180 was prescribed, to be used once in three days.

In 1905 Dr. Libby had seen this case, noting that the eye was passively congested and the cornea quite hazy except near the upper margin and a small, round clear area corresponding to the center of the pupil. Dionin 1:120 was ordered, once every two or three days, and yellow oxide ointment 1:120 on the other days, for one month. The patient did not present himself for further treatment.

but reported that the eye became more comfortable than it had been for the previous year.

DISCUSSION.

Dr. Bane confirmed the gradual clearing of the deposit during his observation of this eye in the last four weeks.

Dr. Black advised the removal of the eye.

Penetrating Sclero-Corneal Wound.

Dr. G. H. Strader reported a child of 12 years with a wound at the sclerocorneal margin and a blood streak running from this point back through the vitreous. A blank cartridge had exploded near the eye. V. = 20/20. No reaction followed after a few days.

Spectacles for Children.

Dr. C. A. Ringle had lately prescribed 6.00 D. spherical for convergent squint in a child of 2½ years. Dr. Black used a 3 mm. wide, light bridge, for children.

Dr. Stevens employed a tape tied around the head from below the occiput to the crown, and through rings at the end of the temples of the spectacle frame, to hold the glasses on in case of absence of nasal bridge.

Paresis of External Rectus.

Dr. D. H. Coover related a case of paresis of the external rectus in a child of 3 years, following a week's illness with enteritis. After the bromide and iodide treatment for three weeks the muscle had about recovered its normal action. Dr. Coover also spoke of great upward and outward squint since birth in a woman of twenty-seven. V = 10/200. On operating, he could find no superior or inferior rectus, but pulled the eye down by a tuck in Tenon's capsule, below. He proposed, further, to tenotomize the internal and advance the external rectus.

Scleritis Following Typhoid.

Dr. E. R. Neeper reported scleritis and posterior synechiae following typhoid fever. There was apparently a drop of pus in the lower part of the lens, which became opaque. Under subconjunctival injections of 15 minims of 1% solution of potassium iodide vision rose from fingers at 18 inches to 20/200, but was subsequently lost.

Optic Neuritis and Central Scotoma.

Dr. E. W. Stevens reported a woman in middle life suffering from slight stupor, slow pulse, subnormal temperature, headache, failing vision, and moderate optic neuritis with central scotoma. V. = 4/20, each eye. History of nasal discharge stopping at onset of above symptoms. Recovery followed opening of the posterior ethmoidal and sphenoidal cells. Dr. Stevens also mentioned a case of orbital cellulitis, diplopia and exophthalmos, which he thought arose from the sphenoidal sinus, posteriorly.

GEORGE F. LIBBY.

Secretary.

INVESTIGATION OF GLASS WORKERS' CATARACT.

Editor OPHTHALMIC RECORD:

NOVEMBER 18, 1908.

Dear Sir—The Royal Society has appointed a Committee, of which I am a member, to investigate Glass Workers' Cataract. We are desirous of obtaining information as to the incidence of the disease in Canada and the United States of America. More particularly we wish to ascertain the relative frequency of the typical form of cataract—a small disc-like opacity in the posterior cortex of the lens—in the various branches of glass manufacture. The condition is common among bottle makers (not makers of flint glass bottles) in England, but we are doubtful as to its prevalence among pressed glass workers. We understand that in America an extremely hot oil furnace is used by the "melters" in this form of glass manufacture. We should be greatly indebted to you, therefore, if you could give us any information on the subject, more especially—

(1) As to the incidence of the specific form of cataract among
(a) bottle makers; (b) pressed glass makers; (c) plate glass makers.

(2) As to the use of recent inventions in the manufacture of these types of glass and their nature—particularly as to the fuel and temperature of the furnaces employed. I am, sir,

Yours faithfully,

J. HERBERT PARSONS.

27 Wimpole street, Cavendish Square, London, W., England.

Notes and News

(Personals and items of interest should be sent to Dr. Frank Brawley,
72 Madison Street, Chicago)

Dr. and Mrs. Frank A. Phillips, of Chicago, are in Arizona for the winter.

Dr. W. Howard Lyle has been appointed an assistant medical inspector for Philadelphia.

Dr. A. Kriukoff, professor of ophthalmology on the Faculty of Medicine of Moscow, is dead.

Dr. A. DeLieto-Vollaro has qualified as Instructor of Ophthalmology in Parma, Italy.

A so-called traveling oculist, H. M. Blumenthal, is said to have been fined \$100 for practicing in Nevada, Mo., without a license.

Dr. Richard A. Reeve, of Toronto, Canada, has resigned as Dean of the Medical Faculty of Toronto University.

Dr. Joseph H. Potts has been appointed to the staff of the New Britain, Conn., General Hospital as oculist and aurist.

Dr. Leon W. Mansur has been appointed as oculist on the staff of the New England Peabody Home for Crippled Children.

Dr. William Watson Gailey, a well-known ophthalmologist of Bloomington, Ill., was married October 21, 1908, to Miss Louise Huffaker, of Jackson, Ill.

Dr. Arnold Knapp, at a recent meeting of the Medical Society of the County of New York, was elected a delegate from that society to the Medical Society of the State of New York.

Dr. G. H. Mundt, of Chicago, recently attended a meeting of the Porter County Branch of the Indiana Medical Society at Valparaiso, Ind., where he read a paper entitled, "The Eye in the Acute Exanthematous Diseases."

Queen Elizabeth, of Roumania, who sometime ago founded a colony of the blind in Bukharest, is about to lay the cornerstone of a very large addition to the original structure. At present 150 blind persons live in the colony, some of them with their families.

Dr. H. V. Wurdemann, of Milwaukee, Wis., announces that beginning on January 1, 1909, he will open offices in Seattle, Wash., Nos. 411, 412, 413, 414, The White building, corner Fourth avenue and Union street, with Dr. A. M. MacWhinnie, of Seattle, Wash. Practice limited to the eye, ear, nose and throat.

Wm. C. Graves, secretary of the Illinois State Board of Charities, has given out a statement of the per capita cost of seventeen institutions for the last quarter. The average per capita cost was \$43.19. In the School for the Blind in Jacksonville, the cost was \$68.42 and at the Industrial Home for the Blind in Wilmington, \$77.60.

Dr. Geo. H. Bicknell, of Omaha, adjunct professor of ophthalmology and otology in the University of Nebraska, died recently of pneumonia. It is a great regret to everyone that a man so valuable both personally and professionally has been taken in the prime of life. We tender our sincere sympathy to his family and to Dr. Harold Gifford, with whom he was associated for many years.

In Cincinnati over one hundred pupils who are four or more years behind their proper classes, have been placed in a school by themselves where they will be cared for by a staff of specialists. The oculists who will examine the children's eyes are Drs. Wm. H. Campbell, Frank Cross, Walter Forchheimer, Louis Stricker, A. E. Hussey and W. McL. Ayres.

Dr. Norman Hanson, formerly of Chicago, who, some time ago, caused a break in the relations of the Russian and the Danish royal families by telegraphing a long letter to the czar in favor of Finnish liberties, is devoting himself to work as an eye specialist among the Greenland Eskimos, who suffer greatly from eye diseases and even blindness. He went to Greenland last spring, and during the summer traveled over the entire south coast. He proposes to remain throughout the winter at a place called Sugar Top, and next spring will try to reach the natives living in the extreme north.

His work is considered important not only for the Eskimos but from a scientific point of view.

Perhaps the most interesting miniature in J. Pierpont Morgan's great collection represents the eye of the celebrated Mrs. Fitzherbert, who was the wife of the Prince Regent, afterward George IV. It is beautifully executed, and shows the eye as if rising from a bank of blue and gray clouds. There is just a suggestion of cheek and forehead, the latter half-covered by the lady's light, flaxen hair, which falls in curls over it.

So far as known, this was the first painting of the kind ever made. It was done by Cosway, the famous miniaturist, on a commission given by the Prince Regent, who wore it on a bracelet. The Prince gave to Mrs. Fitzherbert a similar painting of his own eye, which is now the property of the Earl of Portarlington.

From this beginning there started a fad for "eyes," as they were called, which lasted for a number of years, and the miniaturists of the day were kept busy with orders for them. Many examples of this curious art are still in existence, and only three years ago an exhibition of them was given in London.

It is interesting in this connection to record the fact that Queen Victoria, when the eldest son of the Prince of Wales (now King Edward VII) was a very little baby, had such paintings made of each of his features separately—not only the eyes, but the nose, mouth and ears. These she had mounted on a bracelet, which she never exhibited, however, to anybody outside of the family, unless it were a very intimate friend. It will be remembered that the child, who was called the Duke of Clarence, died when he had scarce attained manhood.—*Saturday Evening Post*.

New Books

Refraction of the Eye. By Tarry C. Parker, M. D., Clinical Professor of Ophthalmology, Indiana University School of Medicine, Indianapolis; formerly Resident Ophthalmic Surgeon, Massachusetts Charitable Eye and Ear Infirmary. With 106 illustrations. Philadelphia and London. W. B. Saunders Company. 1908.

Spectacles and Eyeglasses; Their Forms, Mounting and Proper Adjustment. By R. J. Phillips, M. D., Ophthalmologist Presbyterian Orphanage, Late Adjunct Professor of Diseases of the Eye, Philadelphia Polyclinic and College for Graduates in Medicine,

etc. Fourth edition, revised. With 56 illustrations. Philadelphia, P. Blakiston's Son & Co., 1012 Walnut street. 1908.

A Manual of the Diagnosis and Treatment of the Diseases of the Eye. By Edward Jackson, A. M., M. D., Professor of Ophthalmology in the University of Colorado; Emeritus Professor of Diseases of the Eye in the Philadelphia Polyclinic; formerly Chairman of Section on Ophthalmology of the American Medical Association; Ex-President of the American Academy of Medicine, and of the American Academy of Ophthalmology and Oto-Laryngology, and Member of the American Ophthalmological Society. Second edition, thoroughly revised. With 182 illustrations and two colored plates. Philadelphia and London. W. B. Saunders Company. 1907.

A Study of the Pupils. Anatomy, Physiology and Pathology and Methods of Examination. By Dr. Ludwig Bach, Professor of Ophthalmology in the University of Marburg. With 27 illustrations, many of them colored. Published by S. Karger, Karlstrasse 15, Berlin. Price, 12 M. (\$2.90.)

This is a most complete consideration of the pupils, being a book of 344 pages. Under anatomy are considered the various brain-paths along which the impulses travel to bring about the different pupillary reactions. These reactions are most thoroughly discussed both in health and in disease such as ocular, orbital and brain diseases. Apparatus and methods of examination of the pupil reflexes are exhaustively treated. Reference to the literature of the subject are profuse, 1,778 references being given. An index is appended.

The Complications of Diseases of the Frontal Sinuses. By Dr. P. H. Gerber, A. O., Professor and Director of the Royal University Polyclinic for nose and throat diseases in Königsberg i. Pr. Compiled with numerous tables, 36 illustrations and two plates. Published by S. Karger, Karlstrasse 15, Berlin. Price, 15 M. (\$3.60.) Bound 16.50 M. (\$3.96.)

This book is the result of five years of hard work on Prof. Gerbert's part and represents an exhaustive search through the literature of the subject. In addition many unpublished cases were acquired by personal letters to many rhinologists the world over. The anatomy, physiology and clinical manifestations are most exhaustively treated and are invaluable to ophthalmologists as well as rhinologists, especially in view of the recent interest being taken in the relation of nasal to ocular diseases.

CHICAGO EYE CLINICS.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A.M.	Richard S. Pattillo (P.G.) J. F. Burkholder (E. E. N. T.)	G. W. Mahoney (Poli.) Geo. F. Suker (P.G.) Oliver Tydings (E. E. N. T.)	E. J. Brown (E. E. N. T.)	G. W. Mahoney (Poli.) Richard S. Pattillo (P.G.) J. F. Burkholder (E. E. N. T.)	Richard S. Pattillo (P.G.) Oliver Tydings (E. E. N. T.)	G. W. Mahoney (Poli.) E. J. Brown (E. E. N. T.)
10 A.M.	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	E. J. Brown (E. E. N. T.)	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)
11 A.M.	Brown Pusey, N. W. U. Every day, 10-12 A.M.					
	H. W. Woodruff (E. E. N. T.)	A. G. Wippert (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	A. G. Wippert (E. E. N. T.)	H. W. Woodruff (E. E. N. T.)	A. G. Wippert (E. E. N. T.)
1 P.M.		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)
2 P.M.	E. V. L. Brown (Inf.) E. J. Gardner (E. E. N. T.) Wm. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) D. A. Payne (Ills. Med.) Wm. H. Wilder (Rush) Wm. H. Woodruff (Inf.) H. W. Young (Inf.) N. A. Young (Inf.) Francis Lane (Rush) J. B. Findlay (P. & S.) E. K. Findlay (P. & S.) *Oscar Dodd (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Thos. Faith (E. E. N. T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) F. A. Phillips (Inf.) Wm. H. Wilder (Inf.) H. W. Woodruff (Inf.) N. A. Young (Inf.) N. A. Young (Inf.) J. B. Loring (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) W. Allen Barr (Inf.) Wm. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) H. W. Woodruff (Inf.) N. A. Young (Inf.) J. B. Loring (P. & S.) *Oscar Dodd (Inf.) Thos. Faith (E. E. N. T.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) F. A. Phillips (Inf.) Wm. H. Wilder (Rush) H. W. Woodruff (Inf.) N. A. Young (Inf.) J. B. Loring (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) Wm. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) H. W. Woodruff (Inf.) N. A. Young (Inf.) J. B. Loring (P. & S.) *Oscar Dodd (Inf.) Thos. Faith (E. E. N. T.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) F. A. Phillips (Inf.) Wm. H. Wilder (Rush) H. W. Woodruff (Inf.) N. A. Young (Inf.) J. B. Loring (P. & S.) S. L. McCreight (C.C.S.)
3 P.M.	W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)	H. H. Brown (Ills. Med.)	*J. E. Harper (P. & S.) W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)		W. Allen Barr (C.C.S.)	Geo. F. Suker (P. G.)
4 P.M.	W. F. Coleman (P. G.)	C. W. Hawley (P. G.)	G. F. Suker (P. G.)	C. W. Hawley (P. G.)	W. F. Coleman (P. G.) Brown Pusey (County)	

*Special operative eye clinics.

ABBREVIATIONS:

C. C. S., Chicago Clinical School, 819 W. Harrison Street.	County: Cook County Hospital, W. Harrison and Honore Streets.	Poli.: Chicago Policlinic and Hospi- tal, 174 E. Chicago Avenue.	Rush: Rush Medical College, W. Harrison and Wood Streets.
E. E. N. T.: Chicago Eye, Ear, Nose and Throat College, Washington Franklin Streets. Clinics all day.	Ills. Med.: Illinois Medical College, 182 Washington Blvd.	P. G.: Post-Graduate Medical School of Chicago, 2400 Dearborn Street.	St. Luke's: St. Luke's Hospital, 1416 Indiana Avenue.
	Inf.: Illinois Charitable Eye and Ear Infirmary, Peoria and Adams Streets.	N. W. U.: Northwestern University, 2431 Dearborn Street.	

THE OPHTHALMIC RECORD

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A NEW OPERATIVE PROCEDURE IN THE TREATMENT OF TRACHOMA.

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The various operations for trachoma have not yielded the satisfactory results that we would wish. In many instances as practiced, they produce so great a reaction that the surgeon prefers the more simple medicinal treatment. Again only certain forms of the disease lend themselves to these surgical measures; for instance, expression gives the best results in those well marked cases of the granular form, and this is also true of grattage as at present performed. This latter operation as practiced by Continental surgeons, and employed by Fox as early as 1885, is usually followed by considerable reaction. The bristles of the brush do not present a uniform rough surface and the granulations of the lid cannot be ideally smoothed down by them. The strong solution of corrosive sublimate (1-500) as usually applied proves an unnecessary irritant, and when rubbed on a second time in twenty-four hours, as recommended by the French, it is very painful. Fuchs, in his last edition, referring to present methods of operating on trachoma, says:

"Neither an immediate nor a radical cure of trachoma is affected by operative means, since along with the larger granulations small ones in process of development are always present, which cannot be removed, and which grow bigger afterward. Hence it is necessary after the reaction produced by the operation has subsided to apply caustics in the usual way."

For the past year I have employed both in my clinical and private cases a method of grattage that has yielded most excellent results. It has been tried in all forms of trachoma and has worked equally well in each.

The grattage is performed with strips of sterilized sandpaper. At first thought one might conclude that this operation would be followed by great reaction, but it is not. The reaction is insignifi-

cant and the results are ideal. The granulations are destroyed and a perfectly smooth lid surface is obtained, which in a very short time, except of course in those cases where there are old cicatricial scars, takes on the normal lid appearance, and there is no recurrence of the disease.

The technique of the operation is as follows:

A general anaesthetic is used; Somnoform has been employed chiefly in the clinic, and as the time occupied by the operation is short, it has answered every purpose. The conjunctival sacs are thoroughly cleansed. No. 0 or 00 sand-paper is used, and it must be ascertained if it is pure, as some contains an admixture of powdered glass. The paper is cut into strips about three to four inches in length by $\frac{3}{4}$ inch in width. These are sterilized by dipping them into alcohol and then burning it off. Care must be exercised to prevent the alcohol from burning too long, as the heat will destroy the sandy surface, making them unfit for use.

The upper eyelid is now grasped along its margin by Darier's forceps and the edge being turned upon itself, the lid is everted until the retrotarsal fold is brought into view. A horn spatula should be inserted beneath the lid to protect the cornea.

The strip of sand-paper is next rolled lengthwise over the index finger and, holding it firmly between finger and thumb, the entire lid surface is thoroughly and briskly rubbed. By folding or rolling the strip of paper in different ways (the author is now experimenting with an instrument designed especially to hold the strips, which if satisfactory will expedite the work) all the recesses can be reached and the entire surface rubbed down smooth.

If the lower lid is involved in the trachomatous process, it should be treated in exactly the same way. If there are any granulations on the bulbar conjunctiva, the operator need not hesitate to smooth them down also, of course using care and more gentle pressure.

The surface of the lids, and entire conjunctival sac, are now thoroughly flushed with sterilized water, or normal salt solution, and all blood washed away, including any sand particles that might have been dislodged from the surface of the paper, although the operator *has never observed any come away, nor has any foreign body ever been discovered in the eye after the operation.*

A dressing consisting of cotton or gauze soaked in either of the above solutions is applied and held in place by a light yet firm

bandage. Cold applications are used for the next five or six hours following the operation, and the eyes cleansed at intervals.

As previously stated, the reaction is slight, the patient returning the next day with the eyes open. Upon examination it will be found that the conjunctiva is covered with a slight exudate, which generally remains for four or five days. During this time, and so long as there is any secretion, a solution of silver nitrate (gr. 2 to 5) is applied once in twenty-four hours to the everted lids. After the exudate has disappeared, 1 per cent ichthyol in vaseline is used once daily, or 1 to 500 solution cupri sulph., until the induration or thickness has disappeared, which it does in from three to four weeks.

The advantages claimed for this operation are: First, that it is applicable in all forms of trachoma; the granular, papillary and mixed. Even in the old cicatricial forms it acts beautifully, smoothing down the rough and hypertrophied portions of the conjunctiva.

Second, there is very little reaction, the author having operated in thirty-five cases to date, and in none of them has there been a severe irritation or a single corneal complication following.

Third, by this method of grattage the smaller granulations in process of development are removed, as well as the large, and the after treatment with caustic applications is not necessary.

CYST OF THE IRIS.*

J. S. WEVER, M. D.

KANSAS CITY, MO.

August 21, 1908, L. W. presented himself in my service at the Kansas University Dispensary for examination. Aged 36, colored, American, laborer, married.

Family History: Negative.

Personal History: Noticed nothing wrong about the left eye until one week previous, when it began to "burn," and has been getting worse ever since. No history of traumatism at any time.

Examination: Right eye normal. Left eye shows a cyst of the iris at the temporal end of the horizontal meridian about 7 mm. high by 4 mm. wide. The temporal edge of the pupil is flattened. Tumor is translucent gray with streaks of brown iris pigment on the surface. There is no movement in the cyst. Cornea over the tumor is not cloudy. No increased tension in the eyeball. The

*Read before the Kansas City, Mo., Academy of Medicine, November 7, 1908.

edge of the tumor near the pupil is 1 to 2 mm. above the iris anterior surface. There is no injection of the conjunctiva, and no pain on pressure. Vision good and fundus normal. Würdeman lamp negative.

Diagnosis: Cyst of the iris, probably serous.

Treatment: Operation recommended, but declined.

Terrien¹ describes four varieties of iris cysts in the order of their frequency as serous, pearly, entozoal and dermoid. Pearly cysts are traumatic in origin, have been produced experimentally and are epithelial in character with some cholesterol crystals. Where penetration of the globe has not occurred the cyst results from cells that have become detached from the posterior surface of the cornea or the anterior surface of the lens. Dermoid cysts of the iris have the usual etiology and are very rare. Follin reported one in a woman of 70.

Bland-Sutton² quotes Hulke and Hosch as saying that fifteen out of 19 cases of cyst of the iris had a traumatic history. Also that cysts have been produced by the introduction of eyelashes and epithelium into the anterior chamber.

Streiff³ reports two cases of serous cysts from Haab's clinic. One was traumatic and the other occurred spontaneously in a child of ten years. Latter case was cured with two introductions of iodoform rods and two subsequent punctures with a knife. He reviews literature. He accepts explanation that they are due to the proliferation of the ectoderm, from which the lens normally develops. For the others in which the cells are endothelial in type he assumes the separation of the layer of the iris containing Fuchs' crypts from the posterior layer either by traumatism or by a closure of the lymph spaces which surround the vessels of the middle layer.

Oatman⁴ disagrees with the implantation theory of epithelial cysts of the iris, and favors the extension theory. He calls attention to the tendency of corneal epithelium to penetrate.

Rembe⁵ reports a case of cysticercus in the iris of a boy of seven years removed successfully piecemeal with forceps. Eight references to literature, mostly German.

Gradle⁶ reported to the Chicago Ophthalmological Society a case of traumatic cyst from glasses being broken seven years previous. Also another case operated some years before for traumatism. In both these cases the iris had prolapsed into the external wound.

Brailey and Stephenson⁷ say both serous and epidermoid cysts are exceedingly rare. They mention a case of Graefe's and one of Cooper's that were congenital and "possibly" were real dermoids. They also mention Mackenzie's five cases of cysticerceus. They quote Schmidt-Rimpler's suggestion that non-traumatic cysts may be due to closure of the crypts on the surface of the iris.

Fuchs⁸ illustrates a case of iris cyst with corneal cicatrix from the kick of a horse 30 years previous. He emphasizes the point that there is neither epithelium nor glands in the iris, so that retention cysts are not to be thought of.

NOTE. I saw this case first September 21, 1908, reported it October 8, 1908, at Atchison, Kan., to the Northeast Kansas Society; showed the case in my office October 9 to Drs. Curdy, Kimberlin, Macalister, Schutz and Sherer on account of its rarity, and showed the case again November 7, 1908, at the Kansas City, Mo., Academy of Medicine. Except that the cyst is larger and more clearly seen, there is no change from the conditions as originally reported. Patient still declines operation.

501 BRYANT BUILDING.

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EPISCLERITIS PERIODICA FUGAX—WITH THE REPORT OF THE CASE.

JESSE S. WYLER, A. B., M. D.

CINCINNATI, OHIO.

This rather rare disease was first described by von Grafe (1) under the name of "Subconjunctivitis," but a change of nomenclature to "Tenonites Anterior Partialis" was advocated. Fuchs (2) in his lengthy description overlooked this article, but in his second paper gives full credit to von Grafe for all the details regarding the symptoms, maintaining, however, that the etiological elements hardly receive sufficient attention. In his text-book (10th edition), "Episcleritis Periodica Fugax" is defined as an inflammatory condition of the vascular episcleral tissue characterized by its fleeting

character and tendency toward recurrence. It comes with considerable regularity, at intervals of several days, weeks or months, and continues over a lapse of years, sometimes attacking the one, sometimes both eyes. The disease is not dangerous, but because of its disagreeable symptoms and frequent relapses, very tedious and irritating.

Parsons (3) sums up the pathology in the terse sentence, that as yet not a case has been examined microscopically. The conjunctiva is separated from the sclera by a loose areolar tissue containing the blood vessels of the sclera, hence an inflammatory condition in this locality gives us the picture of a ciliary injection. Of course, the superimposed conjunctiva is also affected. The looseness of the sub-conjunctival tissue allows for considerable exudation of leucocytes, serum, etc., which accounts for the localized oedema and typical area of inflammatory swelling.

History.—The patient, Miss F. F., an unmarried woman of 40 years, reported at the office for the first time July 7, 1908. Had always been well with the exception of an attack of sciatica some ten years previously. Mother living and well, father dead many years of complications. About four years ago she began to have recurring attacks of inflammation in her eyes, although the eyes were affected singly. First came a headache, rather severe, followed by a period of mental depression, after which she noticed a pricking pain in one of her eyes with swelling and congestion.

Status Praesens.—Is a well developed, fairly nourished woman, bright, high strung and very active. Face scarred with repeated attacks of acne vulgaris, from which disease she still suffers. Is very tense and suffers much from constipation. Appetite good. Menses, since attacks, have become more frequent and are very irregular. This past has been of about six weeks standing as in this period her eyes have bothered her practically for the entire time.

O. D. Lids are normal. Tarsal conjunctiva nearly normal. The lower outer quadrant of the bulbar portion is dusky blue in color, lifted by a small localized oedema, and the area beneath shows the dilated ciliary vessels. Cornea and circumcorneal sclera are not affected. Iris responds well to light and accommodation. Tension and fundus normal. Visus 6/9 + 1.25 sph. 6/4. Had been wearing her correction.

O. S. normal in all respects, except slight catarrhal congestion.

Therapy.—Application of dionin powder. Hot compresses of

five minutes, six times daily. Aspirin 1.0 four hourly. Tincture of belladonna gtt. xv after meals.

9 — vii — 08. Dionin relieved all pain and attacks which previously bothered her four to five days, disappeared. Both eyes normal. Applied high tension combined faradic and galvanic current. Patient to continue aspirin and belladonna. Ordered unguent hydrarg. precipit. alba 1% to massage eye twice daily.

13 — vii — 08. Condition idem and orders as above.

21 — vii — 08. Right eye presents same condition as upon coming to me. Dionin applied, stopped belladonna and gave natr. phosphate 30.0 mornings to combat constipation, with sajodin 1.0 three times daily.

23 — vii — 08. Inflammation again improved. Patient left for her summer trip.

31 — vii — 08. Returned with the report that she had several attacks at two week intervals, and at one time both eyes badly affected, followed indiscretion in diet and much excitement. At present the inflammatory area is in the *lower inner* quadrant of left eye, showing the œdema and duskiness as before. Dionin. Rigid gouty diet ordered, viz: Little meat, no starches, alcoholics, coffee, candy, etc. Much water to be used. Colchi-sal capsules, six daily.

15 — ix — 08. Now two weeks with no attacks, patient feels well, but believes that she will suffer another attack at menstrual period.

1 — xi — 08. Health of patient continues first class, no recurrences.

3 — xi — 08. Slight attack in right eye. Responded nicely to dionin.

The symptomatology of this disease is perfectly clear, and nearly all the histories of cases run about the same way. The depression headache followed by the objective signs of lachrymation, redness and localized œdema. Then the rapid resolution and the frequency of subsequent attacks. This affliction could only be confused with two other diseases. Namely: An acute conjunctivitis of bacterial origin and a typical case of episcleritis. From the former we differentiate by the absence of any secretion of mucus or pus. And the want of the nodule and rapid recovery without a trace distinguishes it from the latter.

By far the most important object in reporting a case of this kind is to arrive at the etiological element involved; for it is here that all authors disagree to a more or less extent, and many, in

fact, shirk all responsibility by neglecting it entirely. "Episcleritis periodica fugax" is certainly due to a constitutional cause, judging from the course it runs and the multiple conditions under which it is found. Various authors differ as to sex, but the preponderance favors women, as the more susceptible. Apparently middle age and sedentary habits are predisposing factors, while social conditions, hygiene and heredity seem to play no part. Rheumatism and gout are two diseases which can be traced in nearly all suffering from this form episcleritis. This was brought out for the first time by Hutchinson (4) in his Bowman lecture on "The Relation of Certain Eye Diseases to Gout," and he wrote as follows: "There is a condition which for the want of a better name I have for long been recognizing as *hot eye*, and is one of the curious phenomena attending quiet gout. The term quiet gout is distinct from acute paroxysmal gout. Families liable to gout, known as unequivocal gout, have several members with minor symptoms, merely showing a tendency to that condition. Injudicious acts in diet bring it on. The liability varies with the weather, time of year and ends, unless care is taken, with typical toe attacks. One eye, or sometimes both, are affected. Conjunctiva becomes red, eyeball feels hot and pricks as if sand were in it. Sometimes, owing to irritation of ciliary muscle, sight is temporarily affected. This condition ends often in an iritis, but on the other hand, patient is liable for many years to frequent attacks without risks of assuming serious proportions. In the intervals, the eyes are usually well."

This consideration of gout as a prime factor in the disease was supported by Nettleship (5) three years later, and has come to be the accepted view by many observers. Nettleship describes three cases and attributes the condition to gout in some form or other.

Case I. Short attack of recurrent ocular neuralgia with congestion of one eye at a time in a healthy male of 35. No organic change in the eye. Gouty family history. The attacks consisted in severe pains in the eye lasting the whole of one day. The next day there would be some redness and watering and gradually the eye would assume the normal condition. The pain was augmented by moving the eyes, vision perfect, with slight hypermetropia.

Case II. Patient an elderly lady with short recurrent attacks affecting one eye at a time for many years and at length causing scleral and corneal changes. Family history of gouty megrim. The sister has gout of the foot, brother and father suffered from megrim.

Case III. Frequent attacks of acute painful episcleritis without iritis, affecting only one eye at a time, often only a part of ciliary zone. Patient a middle-aged woman of gouty family.

This last history partakes in a great measure of the symptoms I have described and despite many other solutions I tend toward the gouty theory. Rheumatism of some variety may be found in nearly every individual and to attribute a disease to that cause furnishes us with a poor solution, although in many cases the empirical ordering of the salicyl compounds have been found to be very efficacious.

Because of certain characteristics, Baas (6) considers the condition a primary neurosis of the conjunctival nerves, whereby the typical picture is brought forth. He described such a case as early as 1885 under the title of "Conjunctivitis Nervosa Vera," which occurred in a 21 year old male. Examination of all parts was negative. The attacks were the typical recurring form of episcleritis periodica fugax which re-appeared despite protection and therapy, and finally cured spontaneously. Weather conditions, dust, smoke, over-exertion, etc., could be ruled out. Use of the constant current upon the neck and mastoid process improved, but cocain, quinine and the salicylates left him in the lurch. Basing his conclusions upon these grounds, he finally decided that the nervous origin could alone be the cause.

Closely allied to this theory is the one of vaso-motor disturbances of the episcleral vessels, due to sympathetic irritations and the likening to angio-neurotic oedema of the lids. This is supported by the fact that urticarial eruptions have appeared during the attacks as in a case reported in the Fuch's series (2) and Lamelsohn (7) mentioned this fact in his article upon other vaso-motor disturbances of the eye. However, there are two reasons for doubting this, the first, inasmuch as the oedema never reaches a very advanced grade, and secondly, because vaso-motor attacks are always transient, and of very short duration, much less than 2-6 days as occupied by one of these episcleritis attacks.

Of late, writers are again beginning to describe the connection of ocular diseases with the female genitalia. Robinson (8) attributed this as a cause, especially as several cases appeared during the climacteric, and were also found in women suffering from other disturbances of menstruation. Mooren also wrote upon this subject but in the rather recent publication of Berger & Lowry (9) I fail to find a single reference to anything similar to the case in

hand. My patient is prone to believe that her attacks are more frequent and of greater severity during her menses, but the greater excitability at that time may be the explanation. Sufficient grounds for an admission of this kind do not exist.

Fuchs (10), who has written the best description and collected the greatest number of cases, cannot come to a definite conclusion as to the cause, for he cited examples of each variety. In all he has 23 cases, full histories of six are attached. The first, a 34-year-old man with gouty tendency where the ciliary body was eventually affected. The second, a 50 year old man, in whom a hyperæmia of the ciliary body led to an accommodation cramp with apparent myopia. Another case was in connection with rhinitis following inflammations of all the mucous membranes. Then the attack coming on simultaneously with urticaria. Rheumatism was a distinct point only in one history where the patient had passed through two violent attacks. Malaria was found in several cases.

As far as the therapy is concerned, all writers agree in that no results are obtainable. They treat symptomatically and constitutionally as the various aspects of the case appeals to them, but everything has proven valueless. Scarification may be tried, cauterization around the corneal limbus, subconjunctival injections, in fact nearly everything and when prospects are the brightest, on comes a recurrence. Dionin certainly shortened the time of the attacks, relieving the symptoms, but not preventing new results.

Despite the confused state of the opinions as to the causation, and the many differences of opinion upon this subject which have not been cleared up in the past two decades, metabolic changes which occur in gout and in those with gouty tendencies (the still gout of Hutchinson) seem to have more influence upon the etiology, especially as the patient whose history is cited in full seems to be doing better than under any previous regime. Time alone will show how soon and how many attacks will follow in the future.

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A MUCOUS PATCH ON THE CONJUNCTIVA WITH DEMONSTRATION OF THE SPIROCHAETE PALLIDA.*

HANFORD MCKEE, B. A., M. D.

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(From the Pathological Laboratory of the Montreal General Hospital.)

Upon April 21st last I was asked to see a patient at the Montreal Maternity Hospital, because of the swelling of her right lower lid. The patient, H. R., was about 25 years old, and had been sent to the hospital a few days previously to be confined. She had a bad cough, was very poorly nourished, and was the subject of syphilis. She had a scar on the vulva, a rash had been present but had now almost disappeared. Glandular involvement was marked, and her mouth was a mass of mucous patches.

Some swelling of her right lower eye lid had been noticed the day previously by Dr. Covernton, and to him I am indebted for calling my attention to a rare condition.

She did not complain of any pain or unpleasantness about the eye. The right lower lid was somewhat swollen, especially along the edge at the outer quarter. The eye was watery and the conjunctiva markedly congested. Upon pulling down the right lower lid there was seen on the palpebral conjunctiva, upon the outer quarter of its surface, an area which had a decidedly different color from the rest of the conjunctiva. The peculiar pale blue hue contrasted so plainly with the reddened conjunctiva that the whole border of the patch was very definitely shown. Somewhat oblong in shape, it extended laterally from the middle fourth of the lid to almost the outer canthus, and from before backwards from the edge of the lid to the fornix. The diagnosis from the clinical condition of the patient and the appearance of the lid was mucous patch of the conjunctiva.

Slides were prepared from the mucous patch by Dr. R. P. Campbell, who was good enough to see the case with me, and stained by Giemsa and modified methods. In all the spirochaete pallida was found in quantities. Some fields showed as many as six or seven. Slides prepared from the mucous patches of the throat showed spirochaete pallida and refringens.

Burnett, in Norris and Oliver says: "There would seem to be no reason why mucous patches should not occur during the regular course of the disease on the conjunctiva as well as on

*Read at the Montreal Medico-Chirurgical Society, June 5, 1908.

other mucous surfaces and several such cases have been reported. One case at least has been reported in which a true gumma had its seat on the conjunctiva." The only reference which Fuchs makes to syphilis of the conjunctiva is on syphilitic ulcers, which he says are among the greatest of rarities. Still rarer is soft chancre of the conjunctiva.

The relations of the the spirochaete pallida to eye conditions is as follows:

"(1) The finding of the spirochaete pallida in apparently healthy eyes of infants who have died from congenital syphilis.

"(2) Its discovery in lesions set up experimentally in the eyes of monkeys and rabbits by the inoculation of syphilitic material.

"(3) Its discovery in actual syphilitic lesions of the human eye."

Stephenson found the spirochaete pallida in the aqueous humor of a woman with irido-cyclitis during secondary syphilis also in the scrapings from three cases of keratomalacia in syphilitic infants. He believes in the discovery of the spirochaete pallida we have the strongest possible proof of the syphilitic nature of any disease of the eye. Babs found the spirochaete pallida in the eyes of three syphilitic still born fetuses, and finally we have the finding of the spirochaete pallida in the case here reported. A mucous patch of the conjunctiva from a study of the literature seems to be a rare condition. Whether these cases are seen and not reported is a question. The finding of the spirochaete pallida in the conjunctiva is interesting. While it has been found in a number of eye conditions, I would not be surprised if this were one of the first reports of its demonstration from a secondary lesion of the conjunctiva.

The patient was put upon anti-syphilitic treatment and made satisfactory progress. No local measures were applied to the conjunctiva, which cleared up quickly under systemic treatment.

ANOTHER DRESSING FOR OPERATED EYES.

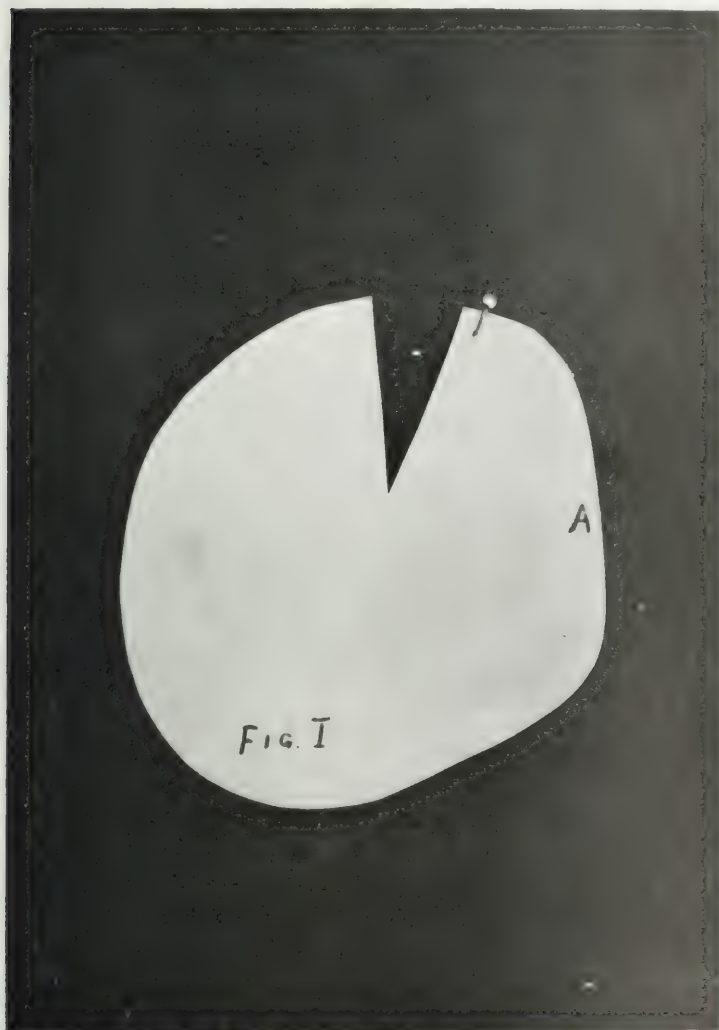
S. MITCHELL, M. D.,

HORNELL, N. Y.

(Illustrated.)

The different kinds of eye shields and dressings for operated eyes are numerous and varied. Nearly every operator has devised one or more of these useful appliances that he strenuously asserts

to be the only proper dressing for an eye, whether it be simply a small square of isinglass plaster to hold the lids together, or a luxuriant upholstery of absorbent cotton and gauze, all held in place by a roller bandage and a mask of wire or papier mache.



The writer has tried nearly all of these dressings and like most of the operators of the present day, has discarded them and now uses only the simple dressing that is here described and illustrated.

The shield is made from thin celluloid board, such as may be purchased from the dealer in artist's supplies. By means of a pair of small sharp scissors a piece of the celluloid board is easily shaped as shown in Fig. 1. This illustration is the exact size



Fig. II.

and shape of the shield. To give it the proper form for protection to the eye, the edges of the triangular notch are brought together and caused to lap one over the other to the extent of one-fourth of an inch at the border of the shield, and secured in place

by means of a No. 12 Crocker's "Best" patent paper fastener. This gives the shield a low flat conical form with a border that exactly fits the parts about the eye.

In placing the shield over the eye, the more or less straight part of its border, marked A in Fig. I, is to be in contact with the base of the nose.

Fig. II shows the shield as applied to both eyes for the first three days following cataract extraction. They are secured in place by means of three narrow adhesive strips. The shield for either eye is cut out exactly the same shape; it is formed into a right or left one at will, by causing either surface to take the convexity. The reader can prove this to his own satisfaction by tracing a pattern from the illustration given here, and then cutting it out and making this pattern take the proper form to fit first the right and then the left eye.

Reports of Societies

JOINT MEETING OF THE CHICAGO LARYNGOLOGICAL AND OTOLOGICAL SOCIETY AND CHICAGO OPHTHALMOLOGICAL SOCIETY.

Regular meeting held November 8, 1908.

SYMPOSIUM ON RELATION OF SINUS DISEASE TO DISEASE OF THE EYE.

Diseases of the Nasal Accessory Sinuses Which May Involve the Eye.

Dr. Norval H. Pierce reviewed briefly the anatomy of the nasal accessory sinuses and of the orbit, and pointed out anatomic relationships between the two, which might account for diseases communicated from one to the other by contiguity.

Diseases of the Nasal Accessory Sinuses as a Cause of Extra-ocular Diseases.

Dr. Casey A. Wood considered the affections of the nasal accessory sinuses, which are causative factors in the production of lachrimation, pain in the eye, and photophobia.

Dependence of Intraocular Diseases Upon Affections of the Nasal Accessory Sinuses.

Dr. Frank Brawley, Chicago: When one considers the very intimate relations between the orbital contents and the nasal accessory sinuses by way of the nerves, blood-vessels and lym-

phatics, it is remarkable that sinus empyema does not oftener cause serious ocular disease. The ophthalmic artery, which sends branches to all the orbital structures, sends off anterior and posterior ethmoidal branches and the nasal artery. Returning from the nose the ethmoidal veins empty into the superior ophthalmic vein and as the orbital veins have no valves blood may pass in any direction. The venous plexuses of the turbinated bodies empty into the pterygoid plexus and are in direct communication with the orbit by way of a branch to the inferior ophthalmic vein. Thus it is easy for organisms or their toxic products originating in the nasal accessory sinuses to reach the interior of the eye through the ciliary vessels, which are also branches of the above mentioned arteries and vein.

The association of the nasal and orbital nerve supplies is even closer than that of their circulatory systems.

The nasal nerve which is a branch of the ophthalmic division of the fifth cranial nerve passes through the orbit to the anterior ethmoidal foramen, then back to the cranial cavity in the region of the cribriform plate of the ethmoid, which it pierces to enter the nasal cavity to supply its anterior half. Its orbital branches are the two long ciliary nerves, the intra-trochlear nerve and the branch to the lenticular ganglion.

After reviewing the literature of the subject, Dr. Brawley reported three cases in which eye disease was intimately associated with and apparently dependent upon intranasal lesions.

Intraocular Involvement Due to Sinus Diseases.

Dr. H. Gradle considered it well-established that a moderate number of eye affections owe their origin to diseases of the nasal sinus. The most frequent instances are those in which there are only symptoms referred to the eye, but without actual lesion of the eyeball. Disease of the tear passages is of nasal origin in more than nine-tenths of all cases, and Birch-Hirschfeld found that at least sixty per cent of all orbital inflammations are extensions of a nasal sinus disease. Inflammation of the optic nerve, either retrobulbar or extending into the papilla, has been started by disease of the posterior ethmoidal cells or the sphenoidal sinus, although these instances are very rare. Whether the sinus disease can lead directly to a lesion within the eyeball is at present undecided. The author has seen four cases of choroidal disease with more or less secondary involvement of the retina associated with sinus suppuration on the same side. In one of the cases the

prompt improvement in the eye disease after draining the maxillary antrum made the etiologic relationship practically certain. In another case the connection was made very probable by the recurrence of an isolated choroidal patch after an exacerbation of sphenoid purulency, as well as by the distinctly injurious effect on the eye accidentally exerted by an obstructing tampon. In the remaining two cases the intraocular disease was of the self-limited type, and the pathogenic influence of the suppurating sinus could not be proved though strongly suggested by the histories and the similarities with the other two cases.

Dr. William H. Wilder: I was very glad to observe that Dr. Gradle mentioned that there is merely an association between eye diseases and accessory sinus affections, because it seems to me that sometimes the relationship is rather remote. It is not so difficult to demonstrate an etiologic relationship between nasal and ocular affections, but I think it is much more difficult to determine that the cause of an ocular affection is in the accessory sinuses. It is true that in some cases the relationship is a closer one than in others, and we can understand how there may be a connection between sinus diseases and retrobulbar neuritis, for instance, although I have never seen a case where I could say positively that it was caused by disease in the sphenoidal cells, or in the posterior ethmoidal cells. Yet such a condition may exist, and a keratitis, for instance, may be due to disease in some sinus. However, there may be coincidences and we must beware of jumping at conclusions. I think you will agree with me that no matter how careful an observer one may be, and no matter how large his clinical experience, he will find it difficult to say definitely that a certain disease of the eye in a given case is due to sinus disease.

We frequently have infection in the nose, and it is easy to understand how it may be carried to the eye either by way of the lachrymal apparatus or by means of the fingers and we are all familiar with such cases. But direct infection from the accessory cavities is more difficult, and after the last word has been said in regard to sinus infection as a cause of eye diseases, we will probably find that it is chiefly a toxic affair, the result of toxins acting upon the delicate structures of the eyeball.

I agree with Dr. Brawley, however, in this, that it is wise in all cases where the etiology is not quite clear, to make a careful examination of the nose and its accessory cavities.

In this connection I wish to present a case which has some bearing on the subject under discussion. It is a case of acromegaly in a man thirty-six years of age; he began to grow ten years ago, having been in good health up to that time. He increased in height from five feet eight inches to six feet two inches. He now stoops considerably, owing to a kyphosis. He has all the signs of the disease. The skiagraph distinctly shows an enlargement of the sella turcica, the pituitary body and of the frontal sinuses.

Of 175 cases of acromegaly described by Hirtl, 52 per cent showed eye symptoms. This man has pressure on the optic chiasm and the result is an optic atrophy.

Dr. C. M. Robertson said that if one of the sinuses is traumatized, especially the ethmoidal, an infection may follow involving the orbit or the globe. Several years ago he saw a patient who sustained an injury of the orbit from a flying splinter of wood. A physician removed quite a large splinter and the patient apparently recovered. Thirteen years afterward he consulted Dr. Robertson, with an eye fully exophthalmosed, but no subjective symptoms. He found the small sinus leading down into the orbit at about the place where the splinter entered. A muco-purulent discharge from the nose was found to originate in the middle meatus, and on probing the latter the flow increased in quantity and roughened bone was felt. He cleaned out the meatus and with a syringe forced fluid into the ethmoidal cells, with the result that the eye popped out much further than it was before the operation. A probe could be passed directly into the orbit alongside the optic nerve, around to the external wall. Although this man had had symptoms for thirteen years pointing toward the ethmoidal cells, there was no disease of the eye. Inflammation of the optic nerve and the globe may be caused by trauma and in other cases the eye is affected by pus in the nose due to some other cause than trauma.

Dr. Robertson thought that most of the cases can be classed as diseases of the eye resulting from sinusitis, in which the ethmoidal cells and the sphenoidal cells are at fault. The former are in direct contact with the optic nerve, so that contiguity of tissues would play a factor in the spread of disease. He has seen a few cases in which disease of the frontal sinus affected the eye, producing subjective symptoms.

Dr. George F. Suker: I think that this discussion has been well prefaced by Dr. Pierce's concise remarks on the regional

anatomy of the sinuses. In addition to these remarks, I would say that a consideration of the conformation of the head and its relation to the various sinuses, as well as the relation of the latter to the optic nerve because of these varying cranial conformation is of exceeding importance.

As the direct implication of the optic nerve by any sinus involvement, particularly sphenoid and ethmoid, depends largely upon the matter of continuity and contiguity of tissue, one would expect that there would be less ocular trouble in broad and long heads than in narrow and short ones. The size of the sphenoid and ethmoid cells do not vary much in proportion to the relative size of the head. The broader the head, the more usual is a great interocular distance and hence a less liability of the optic nerve coming in close contact with the posterior ethmoidal cells.

If a brain tumor can cause lesions in the fundus oculi, such as simulate albuminuric retinitis on the one hand and actually produce neuritis and choked disc on the other, irrespective of the specific location of the tumor, it is not at all unreasonable to suppose or to actually attribute the same to sinus involvement. No doubt some of the intraocular lesions may be coincidental manifestations; but certainly many are not, rather, emphatically demonstrating the relationship of cause and effect. Particularly is this so when therapeutic measures, other than those purposely directed to the sinus, yield no result, yet instantaneous ocular improvement following the operative procedures on the sinus for whatever condition may be present. There are sufficient number of authentic cases on record today to conclusively prove the interdependence at times of certain intraocular lesions and accessory nasal sinus disease from a clinical standpoint. Yet, the exact manner in which the materies morbi within the sinus reaches the globe is still an open question. Personally, I take it to be a local toxin absorption by some direct route, either vascular or lymphatic. The vascular and lymphatic connection between the sphenoid and ethmoid sinus and the orbit and its contents is extremely intimate. In this connection the emissary veins are extremely important.

Not only does distention of the posterior ethmoidal cells, by pressure on the nerve, give rise to neuritis or choked disc, but the passage of toxic material from the sinus directly into the vaginal spaces of the nerve may give rise to the same intraocular complications as are prone to follow brain abscess or brain

tumor. It would be folly to maintain that with every sphenoid or ethmoid involvement one is to expect ocular complications. But, given the peculiar anatomic relationship detailed by Dr. Pierce, with a suppurative process in the sinus, one can reasonably look upon many of the intraocular complications as a direct consequence thereof; and, particularly is this true when an immediate improvement ensues after the eradication of the sinus disease.

Dr. Ballenger spoke of cases we have had. I will cite only two of these in brief: A man, 32 years old, contracted influenzal cold—"stuffy head"—with no systemic symptoms. This nasal condition had been existing for some time. He awoke one morning practically blind. Upon examination of the fundi, I found the typical picture of a choked disc with hemorrhages in the right eye; in the left there was a moderate choked disc with a nerve considerably atrophied and several retinal hemorrhages. Personal and family history absolutely negative in every detail. A thorough examination failed to reveal any etiologic factor other than this nasal condition. Dr. Ballenger found an extensive bilateral empyema of the sphenoidal and ethmoidal cells. He operated and in a very radical manner, first on the right side and a week later on the left side. Within forty-eight hours after the first operation there was a remarkable improvement in his sight; and, one week after the second operation the right eye had cleared so much as to practically give him normal vision. The left eye did not improve correspondingly because of the condition of atrophy. In this case, sinus trouble first involved the left optic nerve and then the right—the latter very suddenly, while in the left eye it evidently produced a neuritis with a subsequent atrophy. He received no other treatment than this and his right eye today has normal vision (with glasses, being moderately myopic).

The other case is that of a middle-aged woman frequently suffering from the characteristically "stuffy head." Each attack was accompanied by extensive conjunctival oedema of the right eye, associated with a certain amount of conjunctivitis. This eye condition lasted as long as the stuffy head, usually several weeks. No cause other than the nasal condition could be found for the eye lesion. Upon thoroughly eradicating the right ethmoid and sphenoid sinus the ocular condition disappeared and has never returned since, though she has frequently had cold in her head since.

This is a large field relatively unexplored and one that we

must carefully consider before we draw any definite conclusions.

Dr. George E. Shambaugh states that there is no question about the close anatomical relationship existing between certain nasal accessory sinuses and the orbit, as well as between the optic nerve and certain sinuses. The frontal sinuses through the supra-orbital extension, when such exists, the ethmoid cells by supra-orbital cells, when these are present, and the thin orbital plate of the ethmoid and the maxillary sinus through its roof, all come in close relations with the orbit. These walls are often quite thin and dehiscence occurs, both congenitally and acquired. The sinuses which come into relationship with the optic nerve are the sphenoid sinuses and the posterior ethmoid cells. A direct extension into the orbit of purulent diseases in the sinuses, particularly the ethmoidal cells, is well known. The question whether it is possible for an accessory sinus disease to produce intraocular lesions is quite different. That such a relationship is possible, one cannot deny. The fact, however, that we occasionally find intraocular diseases associated with diseases of the nasal accessory sinuses, cannot be accepted as proof that the one is dependent on the other. If we permit ourselves to blame all sorts of obscure intraocular troubles on disease of the nasal sinuses, especially if we include diseases other than purulent sinus disease, we will be in danger of blaming the nasal cavities where no eye condition whatever exists. The relationship which was pointed out years ago as existing between certain middle ear diseases and naso-pharyngeal trouble, particularly adenoids, has resulted, as we all know, in many people blaming the nose for all sorts of imaginary relations with ear diseases. Many have gone so far as to urge the removal from the nose of any little anatomical variation, such as a spur on the septum, or an atypically large turbinated body, whenever these were found associated with middle ear trouble. Many operations on the nose have been undertaken with the mistaken idea of a relation existing between the nose and ear. We must be careful lest more serious operations be undertaken on the nasal accessory sinuses for the relief of intraocular trouble where no relationship is present.

That it is possible, anatomically, for diseases of the posterior ethmoid cells and sphenoid sinuses to produce affections of the optic nerve cannot be denied, but that this is a common occurrence seems very improbable. We have in the relations existing between the facial nerve and the tympanum, a condition analagous to the

relation existing occasionally between the optic nerve and the posterior ethmoid cells or sphenoid sinuses. The relation of the facial nerve to the cavum tympani is a constant one, whereas the intimate relation of the optic nerve to the ethmoid cells and sphenoid sinuses is not constant. When we take into consideration the fact that inflammatory diseases of the tympanum are much more common than similar affections of these accessory sinuses, we would naturally expect to find the facial nerve more frequently involved than the optic nerve. We all know how extremely rare it is to find any trouble with the facial nerve, except in cases of cholesteatoma, a condition which scarcely ever involves these nasal sinuses. All of these facts would lead us to expect an involvement of the optic nerve from inflammation of the ethmoid or sphenoid sinuses as an extremely rare occurrence.

Dr. Thomas Faith is of the same opinion as Dr. Wilder. He, too, has failed to see a case of retrobulbar neuritis due to sinus disease, but is convinced that in some cases of infection after cataract extraction the infection is carried from the nose to the eye, as in *ozena*, and in suppurative sinus disease. He thinks that the benefit derived from operations on the ethmoid cells or on the middle turbinal, where eye symptoms are present, is due to the depletion at the time of operation, as he saw illustrated once in a case of severe *cyclitis*. The patient received a severe blow on the nose, which was followed by considerable hemorrhage and a pronounced improvement in the *cyclitis*.

Dr. A. H. Andrews is inclined to be conservative in regard to the relation of eye diseases to sinus affections, although he has had some experiences that make him feel that there may be something more in this than has been thought possible. In two instances he saw an active conjunctival injection follow an exploration of the sphenoid cavity. It came on within fifteen minutes, and disappeared within twenty-four hours. It was probably due to the intranasal manipulations. Rhinologists, he said, are constantly coming in contact with cases of lachrimation, the result of intranasal manipulations, of photophobia, pain in the eye, etc. There can, therefore, be no reason why sinus disease may not produce similar conditions in the eye and its appendages. He is of the opinion that hereafter there will be seen a much closer relationship between diseases of the eye and nose and its accessory sinuses than heretofore.

Dr. E. F. Snyder believes that every oculist should be a

rhinologist to a certain extent. On looking up his records, he found that from six to seven per cent of his patients suffering from supposed ocular headache had disease of a sinus. Inasmuch as many cases of headache come to the oculist, he ought to be in a position to determine whether the cause of the headache is due to the eye itself, or to an inflammation of a sinus. Every patient with ocular headache should have his frontal sinuses examined. Cases of one-sided headaches should arouse suspicion, also periodic headaches, especially when coming on in the morning. Always look for sinus involvement in such cases. Look into the nose for polypi; often the worst ocular headaches will disappear on the removal of such growths. Also make a careful rhinologic examination for pus, making more than one examination, as that is insufficient. Whether the oculist will extend his efforts to diagnosticate to operative manipulation, is a question that must be decided by the individual, but unless more thorough examinations are made, of the nose and its accessory sinuses, a failure to diagnosticate correctly will be the result in a large proportion of cases.

Dr. Joseph C. Beck has noted an association between diseases of the eye and sinus involvement in quite a number of his cases, and has been impressed by one point in the treatment of sinus disease, the report of a large number of cases of ocular affections cured by the passing of a probe or by irrigation, or treatment of the antrum. Usually, in sinus disease, there is a combination, more than one sinus is affected, and one would not expect to get any results from the treatment of only one sinus.

Dr. E. Fletcher Ingals some years ago saw a patient who for several years had trouble with one eye, so that she could not read. He found considerable hypertrophic rhinitis, cauterized one side of the nose, and directed the patient to an oculist for further treatment. She did not return until two years afterward, when her eye trouble had completely disappeared.

Dr. J. E. Colburn saw a patient whose nose Dr. Ingals cauterized and who immediately afterward complained of low vision. On examining the fundus he found the disc blurred and hyperemic. The blindness passed away within twenty-four hours, together with the hyperemia. In another case seen by him a progressive atrophy had taken place, with nothing in the history, personal or family, to account for it. Vision was exceedingly low. He referred the patient to a rhinologist, who found frontal sinus disease, operated, and, either coincident or otherwise, the vision

rapidly lowered for a few weeks, then became somewhat better, but not more than it had been at the time of the first consultation. The nasal condition improved. Dr. Colburn has so often seen a strange relationship between nasal and ocular diseases, that it has placed him on his guard.

Dr. Norval H. Pierce, in closing the discussion on his part, said that at the Illinois Eye and Ear Infirmary, where doubtful cases are referred from the eye to the ear side, there is rarely ever found a connection between the eye and the ear symptoms. Seldom is there found anything in the nose to account for the eye trouble. There is, of course, a well-defined relationship between inflammatory diseases of the sinuses and the orbit. Neuritis following disease of the posterior ethmoidal cells and of the sphenoidal sinuses is a very well-marked condition. The reflex conditions are about the only ones that can cause a doubt, and here it is wise to be conservative in order to prevent unnecessary surgical work. Headache caused by sinus trouble produces pain in the eye, if the posterior ethmoidal and the sphenoidal cells are involved. Of course, the headache may be caused by disease of the frontal and maxillary sinuses. It is dangerous to say that a sinus is diseased without external symptoms. That there is a so-called cold empyema, especially of the ethmoid cells, has been proved, but these cases are extremely rare, and the diagnosis can only be made on removing the middle turbinated body, and perforation of the ethmoid labyrinth.

Dr. Henry Gradle, in closing the discussion, said that a one-sided headache, slight photophobia and diminished vision may result from nasal conditions, but only as symptoms referred to the eye and not as the expression of changes in the eye. Few cases of actual organic changes in the eye are recorded in the literature. More than ninety per cent of all cases of lachrymal disease are due to extension from the nose, and less than ten per cent are due to a descending infection from the eye. Birch-Hirschfeld has shown that fully sixty per cent of the cases are of nasal origin, possibly more, if the nose had been examined thoroughly. Orbital diseases are not common. In cases of optic disease, it has become customary to attribute many of them to sinus involvement, and a few cases have been recorded where an operation proved effective, the sinus having been found diseased, Dr. Gradle has not seen a single case of optic nerve inflammation following sinus disease. He believes that the few cases of intraocular disease re-

corded in the literature and which have been attributed to sinus lesions are generally not above suspicion. The four cases he reported were collected from his own experience, dating back as far as seventeen or eighteen years. In two cases it was a coincidence, and he cannot state whether the sinus disease antedated the eye disease. In one case the disease began to recede as soon as drainage was established, previous treatment having been without avail. He is very much in favor of a comparative rarity of sinus affections as causes of extra or intraocular disease, but even these few cases make it imperative for the oculist to examine the nose in every case, keeping in mind the possible connection between the eye and the accessory nasal sinuses.

MORTIMER FRANK, Secy.

SECTION ON OPHTHALMOLOGY—COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting November 19, 1908.

DR. HOWARD F. HANSELL, chairman, presiding.

A Case of Obstetric Injury of the Cornea Observed in an Adult.

Dr. Chance related the clinical history of a case of *Obstetric Injury of the Cornea* observed as a late result in an adult. There was a fine Y-shaped fibre extending in a vertical direction down the whole length of the cornea at the nasal side, and two short oblique ones at the temporal, in the posterior layers of the cornea. These were evidently the scars of healed ruptures. The production of fibrin had been so excessive that the fibres projected like cords into the aqueous chamber. The patient's birth had been a most difficult one and was accomplished only by instrumental delivery. Her head had been so forcibly compressed that for many days it remained misshaped and for a long time the eyeballs protruded from their sockets. Over each temple deep loop-shaped scars are still visible.

The "Nasalen Reflex Bogenstreif" of Weiss in its Relation to Myopic Distention.

Dr. B. Alex. Randall said he was moved by two recent cases, to ask renewed study to this phenomenon, as to which he had seen little notice since he wrote of it twenty years ago. A boy, aged fifteen years, who five years ago showed under atropine $H = 0.5$, returned complaining of dim sight in the schoolroom and now had $M = 1.5$, under a mydriatic. To the nasal side of each disk was a

well-marked curvilinear retinal reflection, shimmering yet constant, and apparently in front of the retinal level. At the temporal margin there was a broadened scleral ring, a crescent of pigment disturbance, and an outer crescent of beginning absorption. The porus was shelving outward, but sharp cut toward the prominent nasal portion of the disk; and on the left there was the pigment crescent at the nasal border which Nagel designated "supratraction of the choroid." The vessels were little distorted, but contributed to the picture of "drag" pointed out by Thomson in 1875. Both of his parents have low H., and no great notice would have been taken of the reflex if seen five years ago; but it would have been recorded and some oversight maintained.

A boy, aged ten years, coming a few days later showed the reflex and has been carefully measured and correction given for his low H., and will be watched to forestall, if possible, a like change in him—his father and others of the family being already myopic. This has long been his rule in dealing with all instances of this phenomenon.

While the appearance has not been met with any such frequency as Weiss reported (38 per cent. of 1904 school-children's eyes) and is rarely if ever due to the detachment of the vitreous which he assumed, it merits more attention, Dimmer being perhaps the only other who has written of it. As the latter has demonstrated, it is a real inverted image of the illuminating mirror formed by reflection from the concave surface where the distorted prominence of the nerve head sinks to the retinal level. This distortion is almost more characteristic than the conus or other signs of stretching at the posterior pole; and the resulting retinal reflex is not only quite characteristic and fairly conspicuous, but seems generally to mark a pathological rather than any merely anomalous configuration.

Dr. Hansell said he had noted the reflex quite commonly since the publication of Dr. Randall's paper, usually in moderate myopia, but not in hyperopia or high myopia. He always considered it a sign of probable stretching of the eyeball.

A Case of Outgrowth in the Vitreous, Probably Arising in the Optic Nerve.

The patient, a girl, aged sixteen years, was presented by Dr. H. F. Hansell. She had been practically blind in the left eye since one year of age, the blindness having been attributed by her parents to a fall by which the left supra-orbital region was injured.

It is probable, however, that the condition is congenital. The growth consists of a mass of fibrous tissue, springing from the optic nerve sheath, projecting forward a few millimeters into the vitreous. A section was pearly white and nonvascular, and the remainder less white and vascular. Several bands of white tissue similar to that of the mass radiated from its summit and were lost in the meshes of the retina. Two of them partly enveloped bloodvessels, and the rest were independent of vessels.

Dr. Harlan thought that as this structure seemed to be membranous, was well forward in the vitreous, which was otherwise normal, and was in all probability congenital, it might have some connection with a persistent hyaloid canal.

Dr. Randall said that the history of the case recalled that of a child whose similar head injury had been followed by optic nerve atrophy and divergence, but at that time no outgrowth. As to the anomaly, which was very much like one seen with Dimmer in Vienna (*Archives of Ophthalmology*, 1884) and one of Dr. Risley's, he could not associate it clearly with Cloquet's canal or the hyaloid artery, but regarded it as the result of postnatal inflammation as in one or more of his own cases cited by Dr. Hansell.

Dr. Zentmayer said that some years ago he showed before the Section a patient having a pyriform white, avascular, glistening connective-tissue mass in advance of the retina extending from the temporal half of the disk out toward the fovea. It was about one and one-half times the size of the disk and had two streamers, one of which came forward to the posterior capsule of the lens bearing out the assumption, in this case, that the mass was an anomaly of the sheath of the hyaloid artery.

Dr. Risley mentioned the case of outgrowth in the vitreous, in association with the formation of new vessels, which was reported by Marple in New York several years ago at the meeting of the American Ophthalmological Society. He had seen a similar case in the practice of Mr. Simeon Snell.

Dr. Hansell, in closing, said he believed the outgrowth to be congenital and not inflammatory. The mass occasionally swings aside and shows the nerve head, and then it is evident that no inflammatory change is present. He, therefore, considered it a vascularized outgrowth from the nerve sheath.

Membranous Conjunctivitis, With Systemic Complications.

Dr. Howard F. Hansell showed a case of *Membranous Conjunctivitis, with Systemic Complications*. The patient was a

woman, aged twenty-seven years, who was admitted to the Philadelphia General Hospital, May 9, and discharged June 2, 1908, suffering with gonorrheal vaginitis, gangrenous stomatitis, and membranous conjunctivitis. Gonococci were found in the vaginal secretion, pseudodiphtheritic bacteria in the necrotic masses removed from the buccal mucous membrane and gonococci and a few streptococci in the purulent secretion of the conjunctivas. In addition to the usual local treatment for the three affections, she received daily injections of diphtheria antitoxin. The effect of the injections was surprisingly favorable. Improvement in the diseases of the mouth and eyes was so rapid that the membranes entirely disappeared, and the patient had practically recovered in a week's time.

Dr. Hansell deprecated the common use of the descriptive adjective "membranous" as designating a separate class of conjunctival inflammations. A membrane may form in any form of inflammation, irrespective of the cause, provided the inflammation is of high grade.

Dr. L. D. Frescoln, Assistant Chief Resident Physician of the Philadelphia General Hospital (on invitation), said that he had had the opportunity of following Dr. Hansell's case, which was especially interesting from the bacteriological viewpoint. As Dr. Hansell had stated, there was a very extensive false membrane, which at first obscured the eyeball, in a woman with gonorrheal vaginitis and gangrenous tonsillitis. Laboratory examination of the membrane showed no Klebs-Loeffler bacilli, and no case of diphtheria developed in the ward. There had been a number of cases of Vincent's angina in the hospital, a stomatitis with bleeding of the gums, and grayish-white patches involving the mouth, tonsils, and ears, but examination in this case of the infected tonsils failed to show the fusiform bacilli and spirilla of Vincent. It was decided to use injections of diphtheria antitoxin, and the patient showed great improvement in a few days, and a rapid disappearance of the membrane.

Dr. Harlan said that recently good results had been reported by one of the French surgeons in the use of diphtheria antitoxin for various infections, notably those with the pneumococcus.

Dr. Randall said that antitoxin had been used with benefit in many conditions, as for instance, ozena. He detailed the history of a case of conjunctivitis which developed in a surgeon's eyes after an operation upon a child with croup. No membrane was present,

but after the discovery of the Klebs-Loeffler bacillus in the ears of the child at autopsy, injections of antitoxin were given to the surgeon, and the conjunctivitis promptly disappeared. Horse serum in itself may be of value in the treatment of various conditions. It was, of course, a well-established fact that all membranous formations were not diphtheritic.

Dr. S. D. Risley said it was often difficult to determine the significance of membranous conjunctivitis. He recalled the case of a child at the Wills Hospital which presented the characteristics of diphtheritic conjunctivitis, and before admitting it to the wards he sought the advice of Dr. Harlan and Dr. Norris. The case was admitted and a portion of the membrane and discharge sent to the laboratory. In two days the child was far on the road to recovery, the membrane having entirely disappeared before the laboratory report was received, which disclosed it to be diphtheritic. He had seen repeatedly, in illy nourished children and in feeble patients, a purulent discharge disappear and a membrane covering the entire tarsal conjunctiva rapidly form under the too continuous or too prolonged application of iced compresses, and the membrane disappear in turn when heat was substituted for the cold.

Keratitis With Nasal Etiology.

Dr. J. Norman Risley reported two cases of *Keratitis with Abnormal Nasal Conditions as Probable Etiological Factors*. The symptoms in both were similar. A low-grade inflammation of the epithelium and deeper layers of the cornea, slight ciliary injection, no pain, but lachrymation and photophobia, which seemed to be the chief cause of discomfort. Both cases were of long duration, and persisted in spite of local and constitutional treatment until the nasal conditions were discovered and treated.

In Case I, a robust woman, with excellent family history, the corneal condition had come on insidiously, with increasingly blurred vision and lachrymation and had persisted without much change for eight months. Examination showed a nest of infiltrated spots in the lower temporal quadrant of the cornea in the deeper layers, and the epithelium swollen and absent in places. There was slight ciliary injection, with photophobia and profuse lachrymation. Examination of the nostril on the left side revealed a large polypus blocking the whole passage and a polypoid enlargement of the inferior and middle turbinates. The polypus was removed, the usual treatment for the nasal condition was instituted and the treatment for the corneal condition was continued, with the result

of a complete cure in about three weeks. This patient at the time of consultation was wearing a concave spherocylinder over each eye, which under a mydriatic gave place to a convex spherocylinder. Dr. Risley said that the wearing of this erroneous correcting glass was a constant source of irritation; but that the obstruction to the exit of the tears caused by the presence of the polypus was probably the more direct cause of the keratitis.

In Case II the patient, a lady, aged sixty-eight years, was pale, shrunken, and emaciated, and seemed old for her years. She came for treatment June 22, 1908, stating that her left eye had been sore for the past six months. The vision was reduced to fingers at one foot; the tension was normal, the cornea was foggy through its deeper layers and looked sodden and lifeless. The epithelium was swollen and in places raised or absent; the pupil small and adherent. There was slight photophobia and lachrymation. This condition had prevailed in spite of local and constitutional treatment for the past six months, without much change.

Examination of the nostrils showed the presence of a large rhinolith on the left side, completely blocking the nasal passage on that side and causing a deflection of the septum to the right, narrowing the right nostril. This rhinolith was removed after considerable difficulty in two parts: one measuring 20 mm. and the other 55 mm. in circumference.. Local treatment for the corneal condition was instituted, general tonics given, and the patient returned to the care of her local physician, who reported three weeks ago that the eye was entirely well.

Sarcoma of the Ciliary Body.

Dr. George S. Crampton showed a patient, a woman, aged forty-five years, with a *Probable Sarcoma of the Ciliary Body*. The growth was situated in the lower temporal quadrant of the right eye, and was readily seen through the pupil, on oblique illumination. It was of a pale red color, and had dragged the root of the iris backward in its growth, thereby causing an iridodialysis and a displacement of the lens. The tumor had given no symptoms and was discovered accidentally, as the woman had come for treatment of an abscess of the eyelid. For the last seven years she had been comfortable with a high concave glass, the vision at the time of ordering the glass having been 6/15 in each eye. She now counts fingers at one meter with the affected eye.

Marked Ectasia of the Sclera, Simulating Tumor.

Dr. Crampton related the history of the patient, a man, aged

sixty-two years. The eyeballs have always been elongated transversely. He was struck in the left eye by a snowball three years ago, after which its sight was lost for three days, and he had had occasional attacks of pain in this eye ever since.

The present attack was of a few days' duration and was accompanied by agonizing pain in the eye and temple. Tension varied from normal to plus two, and the cornea was insensitive and hazy. Vision was nil in the affected eye, while a $+4.50$ sphere and a $+1.25$ cylinder axis 90 gave 6/15 vision in the other eye.

A rapid increase in the transverse diameter of the globe terminated in a tumor-like protrusion the size of a small lima bean on the temporal side in the equatorial region. The sclera was extremely thinned at each lateral pole, and over the protrusion was as thin as gold-beater's skin. The appearance was so much like that of a tumor that it was decided to enucleate the blind and painful eyeball. A histological report will be made later.

Dr. Harlan said this case was a good illustration of the value of transillumination. The projection was as hard and incompressible as bone and they had no doubt that it was a growth, only questioning if it arose in the sclerotic or the choroid. The transilluminator, which did not happen to be at hand, would have settled the question at once.

There is a similar thinning and commencing lateral bulging of the sclerotic in the other eye which is a typical turnip-shaped ball expanded laterally and shortened anteroposteriorly. There is a hypermetropia of $+4.50$ and a normal disk. It is a question whether anything can be done to check the progress of the disease in this eye. An iridectomy might be in order, although there is not much, if any, increased tension.

Dr. S. D. Risely was much interested in the specimen shown. The large ectasia of the globe certainly simulated that produced by a malignant intra-ocular growth. It is probable that transillumination of the globe before enucleation might have proved an aid in establishing the presence or absence of such a growth. He had in his collection a highly distended myopic ball, which before excision had presented one very large tumor-like prominence and a smaller one at the opposite side. After section of the ball for mounting, the prominences proved to be ectasie, and presented on the concave or inner surface large atrophic areas in the choroid and the sclera stretched to the thinness of a sheet of paper. He thought iridectomy would be a wise procedure in such eyes. If not abso-

lutely hard they are relatively so, and a peripheral iridectomy would favor excretion through Schlemm's canal, as in buphthalmus.

Dr. Hansell was afraid if iridectomy was done, inflammation might be set up in the iris, and he felt that Heine's operation of cyclodialysis would be safer, and not cause inflammation. He had done the operation in one case of glaucoma. He had had a case of ectasia of the sclera in his own practice which involved the ciliary body. An attack of acute glaucoma with intense pain necessitated enucleation. The same condition began in the fellow eye, but was checked by the administration of antirheumatic remedies.

Chorioretinitis in Nephritis and Diabetes.

Dr. Wm. T. Shoemaker showed two cases. The first was in a patient who had had diabetes mellitus for nine years, and nephritis two years. The retinal changes were mixed, partaking of the supposed characteristics of both albuminuric and diabetic retinitis, following more closely the former. The second was in a case of diabetes, the urine showing also a trace of albumin. Here the exudations tended to form a ring around the macula, resembling the appearance seen in retinis circinata. Hemorrhages were quite plentiful in the first case, and were both round and flame-shaped. In the second case they were very small and few in number. In both cases the changes in the disk and vessels were moderate—some blurring of the disk margins, with moderate distention of the veins. Dr. Shoemaker discussed the points usually given in differentiating the two conditions, and thought the second case in the absence of diabetes might be looked upon a case of retinitis circinata.

EDWARD A. SHUMWAY, M. D., Clerk.

DETROIT OPHTHALMOLOGICAL AND OTOLOGICAL CLUB.

Meeting of November 3, 1908, Dr. Leartus Connor, presiding.

Dr. Smith in opening the discussion of Dr. Connor's paper said he had never treated these cases of incipient cataract with the hope of seeing the striae disappear, but has had one case under observation for twenty years without any increase in the striae. He has noted one form of striae disappear which appeared to be due to a rolling of the capsule.

Dr. Campbell said the paper opens up a new field of usefulness to the ophthalmologist. He had considered these cases as untreatable. If the opacity is merely kept from increasing a great result is obtained. He has had a number of cases of stationary

cataract, but has never seen one clear up, except in one traumatic case where after removing the steel from the vitreous the striae cleared up.

Dr. Parker reported one case which has remained stationary for fifteen years, but has never seen one improve greatly. The lens being ectodermic in origin it is easy to understand how malnutrition may affect it similarly to the defects of the nails seen so often in tubercular patients. In some cases the sectors of the lens may shrink and the spaces between them give the appearance of striae, which disappear when the sectors swell again. In one case observed one sector of the lens was entirely cataractous and the rest perfectly clear.

Dr. Maire felt the fact of the disappearance of the striae was established, and had seen it occur in one case.

Dr. Renaud had not been able to keep these cases under observation long enough to get good results. Of all the things, however, that he has tried vibratory massage has yielded him the most satisfactory results. The improvement, however, was not marked.

Dr. Gillman had paid little attention to the general health aside from a study of the urine. He had kept track of one patient for fifteen years in whom a nuclear opacity appeared to get smaller until the patient died.

Dr. R. Connor called attention to the fact that some leaders in the specialty considered it little less than quackery to treat incipient cataracts. This view can no longer be held if it be established, as seems done, that these striae sometimes disappear. That nutritional changes are at the bottom of the causation of cataract is doubtless true, but this is too indefinite. There is still a wide field for work as to the etiology of cataract, and with this as a basis, for its prevention and cure.

Dr. Gleason reported one case of cataract where the lens was completely absorbed in a few years, leaving an aphakial eye.

Dr. L. Connor said in closing that doctors ought to take care of all sick persons. If you can tell them you can do something for them, you can keep them from quack laymen. If you accept the condition that cataract is due to malnutrition and not to old age, you can have a basis to work on.

Dr. Parker reported an extensive case of electric burns in which the patient, a man of 26 years, developed rapidly double cataract.

Dr. Gleason reported a case in which he had removed a collar

button from the larynx immediately under the epiglottis. He also reported a tubercular middle ear infection of a man of 24 years whose lungs were badly infected. The discharge came on over night without pain and seemed to be progressing steadily. Another case of tuberculosis of the conjunctiva was presented in a girl of 14 years. The trouble began as a phlyctenular conjunctivitis which did not clear up. A bit of the tissue was removed and proved to be tuberculous.

Dr. Smith reported a metastatic sarcoma of the under eyelid which was reddish brown and about the size of a pea. He snipped this off with scissors and the wound healed well without recurrence.

Dr. Gillman presented a specimen of complete ossification of the choroid. The eye had been injured 58 years before, when the patient was five years old, and was removed now because of threatened sympathetic trouble. This is now clearing up. He also reported the case of a small glass bead in the middle ear which was removed with some difficulty.

Dr. Parker reported a case of pigmented sarcomata of the conjunctiva about 5 by 10 mm., located toward the nasal side in both eyes. The patient was a man of 46 years, and these were easily and safely removed without any recurrence.

RAY CONNOR,

Secretary.

COLORADO OPHTHALMOLOGICAL SOCIETY.

MEETING OF NOVEMBER 21, 1908, IN DENVER.

DR. E. W. STEVENS, Presiding.

Recurring Corneal Bleb.

Dr. G. H. Strader, of Cheyenne, Wyoming, presented a man with a recurring translucent bleb of the lower and inner quadrant of the cornea. Chloride of zinc had splashed into both eyes. The right sclera sloughed, the cornea was lost, and the eye removed. The left cornea became opaque; but cleared except a nebulous opacity at the site of the recurring bleb. Applications of carbolic and nitric acid, respectively, had not checked the bleb-formation. Dionin and also yellow mercuric oxide ointment were being used.

DISCUSSION.—Dr. Jackson thought the recurring blebs were due to disturbance of the nutritional nerve supply, and that the condition would improve in time. He mentioned the case of a woman lately treated by him for recurring blebs in the central por-

tion of each cornea. At times there was slight ulceration, which healed promptly under applications of nitric acid. In many attacks more than the epithelium was raised; and after subsidence, the lately bulging portion would not stain. The diameter of the bleb of the right cornea was 3 mm., that of the left was 5 mm. Quinine and arsenic had been given for malaria, and dionin used in the eyes; and more recently, atropin alternated with eserin instillations. Improvement had resulted. Hemorrhage from a uterine fibroid was being treated.

Dr. Walker had found a protective bandage, alternated with hot applications, valuable; but had seen no benefit from caustics. When the epithelium once re-attached, he thought it likely to hold permanently.

Cocaine Keratitis.

Dr. Edward Jackson, of Denver, showed a man with large crescentic ulcers near the upper corneal margins, extensive infiltration above lower margins, conjunctival hyperemia, photophobia and free lachrimation, but no anterior synechia. There was a marked and general dermatitis of the face. The history indicated that the corneal ulcers appeared last August. From September 5th until Dr. Jackson first saw him, three days ago, four per cent cocaine solution had been instilled two or three times a day. After two applications of silver nitrate, and substitution of holocaine for cocaine, the ulcers had ceased to stain after three days, the lachrimation had lessened and the dermatitis had improved.

DISCUSSION.—Dr. Bane had seen keratitis follow the prolonged use of cocaine after the removal of a foreign body from the cornea. Withdrawal of the cocain and use of a simple collyrium soon resulted in a cure.

Dr. Libby had observed entire denudation of the epithelium from continued use of cocaine in a case of small corneal ulcer. Under the use of atropin, hot applications and a protective bandage the epithelium was quickly restored and the ulcer healed.

Dr. Strader mentioned the case of a young woman with infiltration of the cornea following the free use of four per cent cocaine solution. He replaced the cocaine with a simple collyrium, used dionin, and curetted the anterior ethmoidal cells. The cornea cleared and vision rose to 20/40.

Dr. Patterson spoke of dermatitis exfoliatum as possibly caused by cocaine, and resembling that caused by salicylic acid.

Dr. Sedwick recalled a case of cocaine keratitis.

Dr. Jackson, in closing the discussion, thought there were probably originally ulcers at the upper borders of the corneas, due to poor nutrition and infection, that the skin affection was caused by the overflowing tears, and that the prognosis was favorable. He remembered a case in which two-thirds of the cornea was involved. Clearing occurred and vision became 20/50.

Albuminuric Neuro-Retinitis. — Blindness. — Subjective Light Sensations.

Dr. D. A. Strickler, of Denver, presented a woman of 51 years who, two years before, had first noticed flashes of light, followed by dimness of vision, and pain in the eyes and temples. Bright's disease was diagnosed then. A year later the vision was 20/70 in each eye, with correction; each disk showed a swelling of four to five dioptres; there were small hemorrhages about the disks and throughout the retina, but otherwise the vessels were not perceptibly altered. By June first of this year blindness was established in the right, and about August first in the left. Severe pains in eyes, temples and occiput continued, were throbbing in character, and a gushing sound accompanied each heart beat. On lying down the appearance of a bright arc light prevented sleep. When presented before the society this irritating symptom persisted, the disks were swollen and the retina showed minute hemorrhages and white spots of fatty degeneration. The blood pressure was 205 mm. by the Riva-Rocci instrument, with broad band. The urine continued to be loaded with albumin.

DISCUSSION.—Dr. Spencer related a case of vitreous hemorrhage associated with malaria, in a youth of nineteen.

Dr. Marbourg had seen relief from pain and unusually rapid absorption of hemorrhage from use of the high frequency current.

Dr. Jackson had observed Dr. Strickler's case, last January, when there were many small hemorrhages, 6 D. of disk-swelling, with little choking, and good condition of the macula and the periphery of the retina. There were marked general vascular changes, and a blood pressure of 185 mm. He had never before seen complete blindness from albuminuric neuro-retinitis.

Dr. Stevens thought the albuminuria was caused by high blood pressure and the pain by toxemia, in the case under discussion.

Palsies of Ocular Muscles.

Dr. A. C. H. Friedmann reported paralysis of the external rectus and paresis of the superior rectus of one eye, in a child

of twelve years, with no history of previous illness. Strychnia and potassium iodid had given no relief.

Dr. Jackson mentioned two cases of recovery, under the iodides, of external rectus paralysis; one being a traumatic case in a child.

Dr. Strickler had noted paralysis of the external rectus disappear in a tabetic case.

Dr. Stevens mentioned the special exercises now being employed to train palsied muscles, even those of the eye, in tabes.

Dr. Patterson reported paralysis of the external rectus and paresis of other muscles in herpes facialis occurring in second-stage tuberculosis.

Low and High Ametropia.—Squint.

Dr. W. C. Bane reported a man of 50 who had experienced relief for five years, of severe weekly occipital headache, vomiting and asthenia, by wearing -0.50 D. cyl. in one eye, -0.12 D. cyl. in the other. Recent return of these distressing symptoms seemed to be due to a change of axis, not of amount, of the astigmatism.

Dr. G. F. Libby reported myopic astigmatism of 8.5 D. in one eye, 12 D. in the other. Also that in a case of convergent squint in a child of eleven months, fitted with 2 D. spherical lenses in December, 1906, only slight improvement in the squint had occurred. The eye that usually deviated, fixed oftener than formerly; but still much less often than its fellow. Recent tenotomy (Critchett's) of the internal rectus of the squinting eye overcame most of the esotropia of 30 to 35 degrees. On re-measuring the refraction, the hyperopia was found to be reduced to 1.50 dioptries. This correction was ordered; and one-half per cent atropine daily in each eye, for one to three months.

Gunshot Wounds in Temple.

Dr. Jackson reported good vision and ocular movements of the right eye following the passage of a bullet through the right temple. The left eye protruded, with swelling of the upper lid and ptosis, which probably concealed diplopia. When, after a few days, the exophthalmos subsided, the sight of this eye was found to be undisturbed.

Dr. Friedmann reported the entrance of a bullet through the left temple and its exit at the external angle of the right eye. The only injury to the left eye was the production of internal strabismus. The right eye became blind from optic atrophy.

GEORGE F. LIBBY, Secretary.

WILLS HOSPITAL OPHTHALMIC SOCIETY.

At the meeting of the society held at the hospital on Thursday, November 5, 1908, at 3:30 p. m., Dr. Wm. Campbell Posey in the chair, several clinical cases were shown and a formal program presented for discussion.

Dr. Schwenk exhibited a woman who had had an extensive sloughing ulcer of the cornea with hypopyon, but who was now quite on to recovery after Semisch's operation. The result showed almost clear cornea, which was free from iritic adhesions and with deep anterior chamber.

Dr. Berens in exemplifying the use of dionin, presented three cases of typical forms of corneal disease which were treated by dusting crystalline dionin over the surface on alternate days and using dionin in 10% solution daily. One was an infant who had been brought to the clinic with ulcerous keratitis secondary to gonorrhoeal ophthalmia. Prognosis seemed hopeless. In addition to the usual remedies, however, dionin was dusted over the cornea alternate days and 10% solution instilled daily. A small leucoma resulted, down and out which is rapidly absorbing. No adhesion of the iris. The second case was in a child of 10 years, both of whose eyes demonstrated rapidly absorbing densities due to superficial keratitis diffusa. Here the only treatment was boracic acid, dionin powder alternate days, and 10% solution daily. The third patient was a girl of 14 years, each of whose eyes were affected with true interstitial keratitis, of the congenital type of specific disease. This child five months previously had light perception only, today the pupils are well dilated and the opacities have thinned down until now she has 6/60 vision, each eye.

Dr. Berens further called attention to his experience during the past three years with the use of dionin solution in recurrent iritis, the well known premonitory symptoms of which were thoroughly understood by the patient, who at the onset of an attack used a 10% solution of dionin in conjunction with $\frac{1}{2}$ grain to the ounce solution of atropine.

Dr. Berens called attention especially to the point that powdered dionin is most effective in the acute type of disease of the cornea. Where the disease is chronic in character it is wise to begin with a 5% to 10% solution, and in a few days resort to the pure powder. The action of the dionin is increased by the use of cocaine preliminary to the insufflation of the dionin. And, again, dionin most decidedly increases the action of atropia so

that a much weaker solution of the latter drug will effect the full physiological action. Experiments are about to be undertaken to demonstrate if possible the pharmacology of dionin when used locally, on the corneal lymph spaces and on the lymphocytes, as well as on cicatricial tissues in diseased cornea.

Dr. Oliver showed a case of corneal abscess which he had treated by the Saemisch operation which was cured without synechias resulting. In cases of hypopyon keratitis Dr. Oliver has found that thyroid extract greatly favors the healing processes.

Dr. Posey showed a man whose face and eyes had received extensive injuries in a powder blast. The treatment had been conservative and slight vision had been retained. He showed an Indian boy from the Carlisle school who had had repeated attacks of trachoma and who is now going through a recurrence of the disease.

Dr. Chance exhibited from Dr. Schwenk's service a little Jewish boy who in August was struck in the right eye by a piece of tin. There had been an incised wound of the cornea near the limbus. The chambers were filled with blood for many weeks. In the last ten days a sudden clearing took place and now the fundus can be seen. The hemorrhage must have come from the choroidal vessels, because there is a large rent in the choroid in the nasal side and the disc is surrounded by a large area of choroidal atrophy.

Operation in a Case of Double Choked Disc, with Results.

A paper by Dr. George Robinson.

His case was one of choked disc associated with paralysis of the external recti and of the left superior oblique muscles. The discs were enormously swollen. The changes were more advanced in the right eye, which condition, according to Horsley, diagnosed the lesion to be on the right side of the brain. The vision was reduced to 20/100 and 20/50 with diplopia to right, to left and below. The pupils were equal and normal in their reactions. The excursions outward in the left eye were limited to the median line. There was a paralytic convergence.

The patient was ataxic and complained of severe paroxysmal headache. In the absence of focalizing symptoms a decompression operation was advised and performed in the sub-tentorial region on the right side. There was marked bulging of the dura, with the escape of a considerable quantity of cerebro-spinal fluid. No tumor was discovered.

The patient rapidly recovered. The swollen discs are now much smaller, the retinal edema had been absorbed. The diplopia and paralysis of the extra-ocular muscles have disappeared and the visual acuity has increased to 20/40 and 20/30. The headaches have not returned and marked improvement in the general ataxic symptoms has resulted.

Choked disc, Dr. Robinson said, may be considered as an inflammatory edema rather than a true neuritis and it is always attended by an increase in the intracranial pressure, irrespective of the exciting cause.

The treatment is operative, requiring an opening of the subdural space. Dr. Robinson believes that the degree of atrophy may be considered to be a guide as to the amount of relief to be obtained from the operation.

Alfred Gordon, M. D., the neurologist of the Northwestern General Hospital, at which hospital the patient, the subject of Dr. Robinson's report, was taken, said:

The subject treated by Dr. Robinson is not only interesting from a scientific standpoint, but also important from a practical point of view.

Choked disc may be encountered in cerebral or cerebellar neoplasms, in syphilis of the brain, in chronic hydrocephalus, in malformations of the cranium and accompanying meningitis.

As far as syphilis cerebri is concerned, it is always wise to begin the treatment with specific drugs, but the test should be, comparatively speaking, a brief one. The researches of Horsley and Kocher as well as the experience of the neurologists show that gummata of the brain are very resistant to specific treatment. Chronic hydrocephalus is not always distinguishable clinically from tumors of the brain. Although spontaneous improvement in the eye condition may occur in the former, nevertheless, in view of the difficulty of differential diagnosis, it should be treated like a cerebral tumor when the eyegrounds and vision are involved. If we turn our attention to the general experience of the ophthalmologists and neurologists we can see from Hippel's latest statistical study (*Munch. Med. Wach.*, Sept., 1908) that operative procedures are the only indication in cases of choked disc. A palliative decompression is not only advisable, but also urgent. Hippel collected 221 cases. Sixty-one showed improved in vision; in fifty-six vision remained poor. Fifty-three patients died, but they were operated in an advanced stage of their disease. Ninety-

two patients had poor vision before the operation: twenty-eight of them improved considerable and fourteen slightly.

Operation (decompressive) improves not only the condition of the eyes, but also the general symptoms and prolongs life. Hippel shows that out of the sixty-one cases thirty lived longer than one year, twenty-five longer than two years, and six longer than three or five years.

The operation is therefore beneficial from every standpoint. The question is now when to operate. The criterion should be the state of the visual acuity. After a short trial of mercurials and iodides in doubtful cases, and without such a trial, when the diagnosis is more positive, if the vision is getting poorer from day to day, prompt surgical intervention should be resorted to. This has been my personal experience, and I have never regretted such a course. In Dr. Robinson's case I have found all the symptoms referable to a cerebellar involvement, and more on the right side than on the left. In my neurological report I have pointed out that the patient's cerebellum is unquestionably invaded or pressed upon and in view of the gradually increasing blindness an operation is absolutely urgent. The results verified my contention.

I am so strongly in favor of decompressive operations that when I am consulted and told that the patient is improving under iodides, in spite of it I advise and insist upon operative procedures, especially when I find that the visual acuity is either at a standstill or only slightly improved.

Dr. Charles A. Oliver, in the discussion, said: The subject is by no means a new one. The interest which it has excited, however, is most wholesome and to be welcomed, not only by the family physician, the neurologist, and the surgeon in combination from a broad general view-point, but by us as ophthalmologists, whose business it is primarily to preserve the organ of vision and its functioning as intact as possible amid such a calamity.

Dr. Oliver states that in spite of the fact that not every case of optic nerve, chiasmal and tract, etc., pressure needs it (as illustrated by the recital of several important and thoroughly studied examples, which permanently recovered with almost perfect visual apparatus that has been coarsely involved) he would submit each and every such case to a primary examination—repeated, if necessary, as quickly as possible—for every datum of relevant importance, deeming it unjust and unfair to the patient to confine the indications for such a procedure to a more peripheral and

ophthalmoscopically visible optic nerve-head choking as a part of the pressure process upon the visual apparatus. In other words, he considered the procedure, when properly and sufficiently early done, to be one not only valuable as a palliative for the future integrity of vision in so-called "papillary edema," but advisable in appropriate cases of fairly good or apparently normal nerve heads in which characteristic field defects of optic nerve, chiasmal and tract, etc., disturbances pointing towards undue pressure upon three structures were present. He felt sure of this in spite of the frequently seen recovery in these peculiar types of cases.

Having seen recurrent recessions of optic nerve effusion with almost complete restoration of the visual functions (exclusive of perfect color saturation), as many as five successive times in two cases of lumbar puncture—with a study of the spinal fluid pressure in one, and an analysis of the character of the contained fluid contents in the other,—he would suggest the additional employment of the procedure as a temporary, primary or alternative one in some appropriate cases.

From several standpoints he considered the method of subdural decompression to be only palliative, but of etiologic use by study of the exposed or escaping fluid; as prognosis, by pressure studies, and as even therapeutic by the mechanical production of an artificial outlet.

Ophthalmologically he believed the procedure to be of particular value for the preservation of vision in absorbable masses such as gummata, which, as is well known clinically, are so insolvable by ordinary medication; of excellent service in intracranial neoplasms, both removable and non-operative—particularly in the former; and of some use in other intracranial disturbance in which there is much seral formation.

The procedure to be of any ophthalmic value must be done early—before secondary changes in the visual apparatus will have had time to produce their disastrous and lasting results. If focal symptoms are present and the case is operable, it is best to do the procedure in the suspected region; if not, there is all the more reason for the making, as it were, of a preservative safety valve.

Burton Chance said that what he had to say upon the subject, at this time, he feared might be a repetition of what had already been said by the other speakers, yet the important points in the problem can not be iterated too many times.

He is a firm believer in the efficacy of operations for the

relief of pressure in choked disc, and whenever consulted he has unhesitatingly advised their performance.

In our spécial province we are concerned with impending blindness chiefly, yet we can not ignore the presence of the other cardinal symptoms of tumor in the brain. It is most likely that our aid will be sought because of the blindness, when if there be choked disc it is our duty to urge opening of the skull, for that operation is not only distinctly palliative in its effect, but the life expectancy is prolonged. We must not forget that we are physicians, and not merely fitters of glasses.

In the past ten years Dr. Chance has paid much attention to the subject. In this period there had been brought under his observation eight cases of choked disc, in each instance of which opening the skull was advised, but the advice was either rejected or delayed, so that unrelieved and fatal results ensued. So disappointing was this experience to him that he prepared a simple paper on the subject of "Optic Neuritis in Tumor of the Brain," in which he pleaded for early operative interference. It was published in the *Pennsylvania Medical Journal*, with the hope that it might appeal to the general practitioner, and further enlighten him on the status of the procedure.

To the English and American operators belongs the credit for this valuable surgical procedure. In a recent number of the *Muchener Medicinische Wochenschrift*, Von Hippel, impressed by the success of American and English surgeons, and deploring the backwardness of the Germans in adopting palliative treatment for choked disc, analyzes the record of 221 cases, in 129 of which there was still good vision, while sixty-one were materially improved or cured, and ninety-two were already blind, and no benefit resulted as the operation came too late. Such, in general, were the comparative results which he observed in his studies two years ago. They confirm his belief that it is our duty to invite the surgeon to aid us in all cases in which the symptoms are so pronounced as to lead us to believe we are dealing with an intracranial tumor, especially when the symptoms are not allayed after thorough medication for six weeks. At this early stage the prospects are good, not only for the retention of vision, but for ultimate cure; the outlook is unfavorable or bad when deferred to an advanced stage. In speaking on this topic it is difficult to frame one's expressions so that they may not be exactly those of Horsley, whose

earnest enthusiasm drives one along so that his words seem to be one's own.

The subject is wide—one almost wishes to prolong the discussion of it. It has been discussed by the Ophthalmological Society of the United Kingdom, and by the American Medical Association also, in 1906; and, after de Schweinitz's admirable summary of his personal investigation, read last night at the College of Physicians, we ought to feel that no further plea is needed. And yet before last night, Chance had made up his mind to suggest to the society that it prepare for a symposium on the subject and invite surgeons of experience to meet with it.

Dr. Chance said he did not intend to define how the operation should be done. Each case is subject to its own limitations. Neither would he speak here of the different effects of various tumors. What he would say is that all tumors do not grow alike, nor cause the same degree of destruction. We know how rapid may be the growth of a gumma and how inevitably the damage progresses. It is therefore unwise to rely upon mercurialization to effect a cure.

After it has been decided that the case is one of papilledema, due to the pressure of a tumor in the cranial cavity, the all important point is to determine the exact seat of the new growth. Yet, even when the disease can not be diagnosed and directly localized, the simple opening of the skull may cause a slight subsidence of the edema. In the majority of cases, however, this is not sufficient, unfortunately, and the dura should always be opened. Some surgeons prefer to trephine rather than to perform a large osteoplastic operation. Horsely advocates the making of a large oval opening in the temporal region and the free incision of the dura which he calls "the operation of selection." It is true the possibility of prolapse is likely, yet even with this ensuing, life is more endurable than it could be without the operation. The operation is not free from danger, yet in the hands of a skillful man it can be performed rapidly, and the recovery from the surgical procedures can be very prompt. In April last, Dr. Frazier operated for Dr. Chance, performing a large osteoplastic flap; the ether was withdrawn in 40 minutes. The patient, in a wheeled chair, met him in the corridor of the hospital and was ready to go to her home on the ninth day.

The point for us to keep before us is to operate in time, before the affection has induced irreparable harm; without it, blindness

surely results. Horsley, at the Oxford Ophthalmological Congress in July last, again stated his unflinching position that all cases of optic neuritis should be relieved as soon as possible by operative treatment, and that the physician or surgeon in charge of a case must be held to be responsible for consequent blindness if the neuritis be not treated as soon as detected. The greatest support offered to the advocates of early operation is the evidence of their results. There are many persons alive today who were operated on before and since Horsley's advocacy in 1888, who would otherwise have died. Nevertheless, we must not grow confident too soon in any case. Sufficient time must be allowed to relapse before publishing our results. A year ought to tell much.

Few things are more striking after operation for cerebral tumor than to see the rapidity with which the swelling and the degenerative changes of the disc and the retina clear up, proving that in a given case of intracranial tumor the so-called optic neuritis has been dependent solely upon the mechanical pressure exerted by the growing tumor. In spite of this almost miraculous subsidence the testimony of long experienced observers shows that the slower the changes, providing distinct atrophy is not present, the better the result.

In the case of a young girl under Chance's care in June last, whose vision unfortunately had already been reduced to light perception only, whose discs were swollen to 7 D. and upon whom Dr. Frazier had operated on June 28, no ophthalmoscopic changes were observed during the operation, but on the next day there was a marked increase in the vascularity and by July 12th the discs were flat. On August 2 the patient could detect gradations in light.

Dr. Posey pointed out that notwithstanding the activity of neurologists and the aid they had received from a few ophthalmologists in the comparatively new field of decompression operation for the relief of intracranial pressure, the vast body of ophthalmologists had not given the subject the attention which it deserved, nor have they urged the decompression operation as early in many cases as could be desired. He said that the recent papers by Mills, Horsley, Spiller, Frazier, de Schweinitz, Bordley and Cushing indicated that the decompression operation was not a dangerous procedure and that its influence on sight was truly remarkable. He referred to the observations of Kink, that 73% of all cases of decompression showed an improvement of vision. Dr.

Posey thought that there was undoubted evidence to show that the relief of pressure on the optic nerves in all cases of intracranial growth should be done by an operation on the cranial cavity, as lumbar puncture was known to be dangerous in this class of cases, on account of the possibility of the medulla oblongata being crowded into the foramen magnum and blocking the exit of fluid. De Wecker's operation for the relief of pressure on the optic nerves by opening their sheath had not come into general favor.

Posey further pointed out the futility of the decompression of any other form of operation when the tumor implicated the basal visual tracts, as blindness in this class of cases was inevitable. Although many surgeons thought the tumors of the cerebellar pontine angle had best be treated by the decompression operation, there was evidence to show that improved operative technique would render the removal of many growths from that region possible, and he referred to the observations of Bradley and Cushing that contrary to the statement found in many neurological and ophthalmological text books, choked disc is rare in uncomplicated meningitis. This has been Posey's experience after an examination of many eyes of children with meningitis in the Children's Hospital. When choked disc does occur in this class of cases, it is usually indicative of internal obstruction, hydrocephalic complications, and is of great significance. Lumbar puncture is decidedly useful in meningitis with papillitis, the slight relief of the pressure on the papilla and brain permitting more blood to reach the diseased parts.

Dr. Posey referred to the term "papilledema" as a substitute for the work "choked disc," which was introduced by Parsons, and thought it would be useful to designate the effects produced by brain tumor from those produced by true inflammation of the optic nerve.

Dr. Posey referred to Marcus Gunn's views that papillitis is associated chiefly with hypermetropic eyes, and is relatively rare in the myopic; and he quoted Cushing's observations, who had seen no case of myopia in which there had been considerable increase of tension without choking of the discs and the observation of the same author of two cases of hypermetropia with tumors of the hemisphere in which no choking had occurred, notwithstanding that one of these patients had the unusual degree of 7° D. of hypermetropia.

And finally Dr. Posey referred to the differences of opinion

existing among ophthalmologists regarding the time of subsidence of the swelling of the nerve after a decompression operation. Some maintain that a perceptible diminution in the swelling of the nerve could be observed within 48 hours after the operation, while others maintained that no changes could be observed until the lapse of a week or more. Posey's belief, based upon a study of three cases, was that no perceptible change in the nerves occurred during the first week.

Dr. Risley said that he regarded the decompression operation for the relief of choked disc as one of the signal advances in surgery during the present generation. We should not, however, allow our enthusiasm to lead us into error. It should be borne in mind that all cases of optic neuritis with great swelling and edema of the papilla are not due to intracranial disease. The papillary and retinal edema of albuminuria was cited as an example where the decompression operation would not be advisable. He urged that the presence of focal symptoms was important and cited two examples from his own practice of choked disc with great swellings, contracted fields of vision, and retinal hemorrhages, each of which showed recovery after drainage of the frontal sinus and ethmoidal cells. In each instance focalizing symptoms were either absent or doubtfully present.

Sarcoma of the Bulbar Conjunctiva.

P. N. K. Schwenk, M. D., read the report of a case.

In reviewing the literature of the subject, Dr. Schwenk stated that the conjunctiva is subject to the same varieties of malignant growths as may be found in the mucous membranes of other parts of the body. The greater number of these are of the type of the epithelioma.

Noyes reports having found in the literature forty-eight cases of epibulbar growths, seventeen of which were from the conjunctiva and thirty-one from the limbus. Strause tabulates true sarcomata of the limbus. Panas holds that the so-called sarcomatous forms are really epitheliomata of rapid growth. Kershbaum tabulates sixty-seven cases of sarcomata of the conjunctiva, nine of which were epibulbar in origin, five of these were leucosarcomata, two were leucosarcomata with hematogenous pigmentation, and two were melanosarcomata. Fuchs claims that the sarcomata of the conjunctiva are always pigmented, thus differing in this respect from the epitheliomata, yet pigmented epitheliomata do occur.

The predisposition for both the epitheliomata and the sar-

conata is for the boundary line between the conjunctiva and the cornea.

In THE OPHTHALMIC RECORD of October, 1908, Dr. Julius Gross reports a case of melano-sarcoma of the limbus in a female aged 21 years. He cites the researches of Lyder Borthorn, who found it only eight times in 15,000 cases of diseases of the eye. Clegg and Hall state that only three cases were observed in 520,523 out-patients in the Manchester Royal Clinic.

Verhoeff and Loring found two cases in 41,719 patients treated in the Massachusetts Charitable Eye and Ear Infirmary.

The details of Dr. Schwenk's case are as follows: Edna N., aged 15 years, came to the hospital September 16, 1908, desiring to have a red spot removed from the outer side of her right eyeball. It had been growing gradually larger for several years. At about 4 mm. to the outer side of the limbus was found a flat papillary mass circular in outline, 3 mm. in diameter. It was slightly elevated, covered by epithelium, but not attached to the sclera. It was pinkish, and numerous vessels radiated from it.

The patient was admitted to the hospital and prepared for operation. The tumor was removed four days later. She made an uneventful recovery and was discharged September 30, 1908, apparently cured.

The specimen was given for examination into the care of the pathologist, Dr. Harold Goldberg, who reported the mass to be a quite vascular small round cell sarcoma which had infiltrated the surrounding tissues. The external surface was covered with degenerated epithelium.

Dr. Goldberg, in reporting his findings in detail, recited briefly the pathological history of this rare condition, and called attention to the points of difference presented by the case reported. Dr. Schwenk's case was especially notable, because it occurred in a child of fifteen years, while the average age is fifty-one, and also because it was located at a point further from the corneal limbus than is usually the case, and it was of the mixed type of round and spindle cells. In addition it was non-pigmented. It had a fairly broad base, and appeared to be invading the surrounding conjunctiva. It was quite vascular and somewhat alveolar in type. The sub-conjunctival tissues were thickened; and while there was a proliferation of the fixed connective tissue elements the conjunctival changes were not sarcomatous in nature, nor sufficiently pronounced to demonstrate a distinct line of demarcation. Dr.

Goldberg stated that these findings were sufficient to indicate that the growth was spreading towards the surface and towards the cornea, but not intraocularly, a process most to be feared. He nevertheless looks upon the growth as a malignant one.

The next meeting of the society will be held at the hospital on Monday, December 7, 1908, at 3:30 o'clock, to which all interested in ophthalmology are cordially invited.

BURTON CHANCE, M. D., Secretary.

235 SOUTH THIRTEENTH STREET.

Notes and News

(Personals of interest should be sent to Dr. Frank Brawley,
72 Madison Street, Chicago.)

Dr. C. M. Swartz, of Pueblo, Colo., died October 3, 1908, aged 32 years.

Drs. Cook and Payne, of Eau Claire, Wis., were recent visitors at the clinics in Chicago.

Dr. Theo. Blakesley has moved his office to 515 Commerce building, Kansas City, Mo.

Dr. A. F. Phillips, of Fort Wayne, Ind., has recently removed to the new building of the Physicians' Defense Company.

Dr. Samuel Z. Shope, Harrisburg, Pa., was elected a vice-president of the Medical Society of the State of Pennsylvania at its recent meeting.

Dr. James M. Patton, who is associated in practice with Dr. Harold Gifford in Omaha, Neb., spent some time recently in the various Chicago clinics.

Dr. J. A. Pratt, of Aurora, Ill., read a paper before the International Medical Society of Mexico, which met in Tampico, Mexico, January 20, 21 and 22.

The State Board of Charities of New York have approved the articles of incorporation of the new special hospital to be erected in Buffalo by Dr. Lucien Howe and which will be known as the Howe Eye Hospital.

The Illinois Civil Service Commission has set the date of May 6, 1909, for the examination of candidates for eye surgeons, assistant eye surgeons, alternate assistant eye surgeon, pathologist and six internes at the Illinois Charitable Eye and Ear Infirmary, Chicago.

Dr. F. Antill Pockley, of Sydney, Australia, lecturer in ophthalmology in the University of Sydney, and honorary ophthalmic surgeon to the Royal Prince Alfred Hospital, was unanimously elected president of the Australasian Medical Congress at the recent meeting in Melbourne. The next session, which will be the ninth, will be held in Sydney in 1911.

Dr. J. Kennedy Irwin was married to Miss Emma Myrtle Murdoch on December 9th at Pittsburg, Pa. After an extended eastern and southern trip the Doctor and Mrs. Irwin will be at home to their friends after March 1st at their new home, 812 Beatty street, East End, Pittsburg, Pa. Owing to the recent death of Dr. Irwin's mother the ceremony was very quiet.

Douglas Argyll Robertson, M. D., F. R. C. S., died recently at Gondal, India, aged 71 years. His name given to the well known phenomenon, the Argyll Robertson pupil, will serve as a commemoration of his work in ophthalmology. He occupied the position of honorary oculist to the King in Scotland and was formerly lecturer in ophthalmology in the University of Edinburgh.

Dr. L. Webster Fox, of Philadelphia, who is chairman of the Publicity Committee of the County Medical Society, spoke in favor of the bill providing for one examining board for practitioners of medicine in Pennsylvania. At present it is possible to fine irregular physicians for illegal acts, but not to prevent them from practicing afterward, a condition requiring revision of the present medical laws.

The officers of the Section of Diseases on the Eye, Ear, Nose and Throat are anxious to obtain the names of members who are doing special work in these branches. The information is desired so that the officers can prepare a program for the Section at the next annual meeting. All members who wish to be identified with the work of the Section on Eye, Ear, Nose and Throat are requested to so inform the officers. Communications should be addressed to Dr. J. H. Thompson, Kansas City, or Dr. T. McLemore, Nevada.

The annual meeting of the stockholders of the Chicago Eye, Ear, Nose and Throat College was held December 1st, last. This was the twelfth year of the existence of the college, and the reports of officers showed a very satisfactory condition of the school and

hospital. Election of board of directors resulted in the election of the old board consisting of Drs. W. A. Fisher, A. G. Wippert, H. W. Woodruff, Thomas Faith and J. R. Hoffman for the ensuing year.

The annual meeting and banquet of the Chicago Ophthalmological Society was held January 11th at the Calumet Club. Dr. Thomas A. Woodruff, the retiring president, acted as toastmaster. The officers elected for the ensuing year are: President, Dr. Frank Allport; vice-president, Dr. William A. Mann; secretary-treasurer, Dr. Willis O. Nance; councilor, Dr. Paul Guilford; councilor to the Chicago Medical Society, Dr. Thomas Faith. The greetings of the society were sent to two members, absent on account of serious illness, Dr. Frank A. Phillips and Dr. W. A. Fisher. Among the out-of-town visitors were: Drs. Albert E. Bulson, Jr., Fort Wayne, Ind.; James M. Patton, of Omaha, Neb.; Edward F. Gavin, of Waukegan, Ill.; Eugene Lewis, of Dubuque, Iowa; L. W. Dean, of Iowa City, Iowa.

A traveling "eye specialist," sailing under the cognomen of "Dr." H. M. Blumenthal, was given a "treatment" in 'Squire McVeigh's court at Gallatin, and fined \$50 and costs for practicing medicine without a license. The Gallatin *Democrat*, commenting upon Blumenthal's achievements as an eye specialist, remarks as follows: "Dr. Blumenthal has been making Gallatin for several months. He was a pleasant appearing fellow with a foreign brogue and we did not suspect him as being a 'quack.' He had a number of patients here and we understand was paid very large fees by some of them—in fact, a member of the *Democrat* force is still catching at his breath, the result of the near-separation from \$35 cash for a pair of the doctor's powerful glasses and some of his 'magic' eye wash." These charlatans are almost always "pleasant appearing" fellows, and it is quite characteristic for them to affect a "foreign brogue," an accomplishment which seems to act as an anesthetic in the operation of separating the victim from his money. We are indebted to Dr. M. A. Smith, secretary of Daviess County Medical Society, for the above information and we feel sure that the announcement will be of interest and a source of encouragement to members of other county societies in their efforts to protect the public from charlatanism and quackery.—*Jour. Missouri State Med. Ass'n.*

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A.M.	Richard S. Pattillo(P.-G.) J. F. Burkholder (E. E. N. T.)	G. W. Mahoney (Pol.) *Geo. F. Suker (P.-G.) (Oliver Tydings (E. E. N. T.))	E. J. Brown (E. E. N. T.)	G. W. Mahoney (Pol.) Rich'd S. Pattillo (P.-G.) J. F. Burkholder (E. E. N. T.)	Richard S. Pattillo (P.-G.) (Oliver Tydings (E. E. N. T.))	G. W. Mahoney (Pol.) E. J. Brown (E. E. N. T.)
10 A.M.	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	E. J. Brown (E. E. N. T.)	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)
11 A.M.	Brown Pussey, N.W.U. Every day, 10-12 A.M.					
	H. W. Woodruff (E. E. N. T.)	A. G. Wippert (E.E.N.T.)	J. R. Hoffmann (E. E. N. T.)	A. G. Wippert (E.E.N.T.)	H. W. Woodruff (E. E. N. T.)	A. G. Wippert (E.E.N.T.)
1 P.M.		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)
2 P.M.	E. V. L. Brown (Inf.) E. J. Gardner (E.E.N.T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) E. K. Findlay (Inf.) D. C. Orcutt (Inf.) D. A. Payne (Ills. Med.) N. E. Remmen (Inf.) F. A. Phillips (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) *H. W. Woodruff (Inf.) N. A. Young (Inf.) M. H. Lebensohn (P.&S.) S. L. McCreight (C.C.S.) Francis Lane (Rush) J. B. Loring (P. & S.) E. K. Findlay (P. & S.) *Oscar Dodd (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Thos. Faith (E.E.N.T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) F. A. Phillips (Inf.) H. W. Woodruff (Inf.) N. A. Young (Inf.) M. H. Williams (Inf.) M. H. Lebensohn (P.&S.) S. L. McCreight (C.C.S.) Francis Lane (Rush) J. B. Findlay (P. & S.) *Oscar Dodd (Inf.)	E. V. L. Brown (Inf.) W. A. Fister (E.E.N.T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) H. W. Woodruff (Inf.) N. A. Young (Inf.) E. K. Findlay (Inf.) J. B. Loring (P. & S.) E. K. Findlay (P. & S.) *Oscar Dodd (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) *Frank Alipho (St. Luke's) *Frank Brawley (St. Luke's) Thos. Faith (E.E.N.T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) E. J. Gardner (E.E.N.T.) *Paul Guilford (St. Luke's) *Casey Wood (St. Luke's) *T. A. Woodruff (St. Luke's) J. B. Loring (Inf.) D. A. Payne (Ills. Med.) F. A. Phillips (Inf.) *Wm. H. Wilder (Inf.) H. B. Williams (Inf.) Francis Lane (Rush) M. H. Lebensohn (P.&S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) H. W. Woodruff (Inf.) N. A. Young (Inf.) J. B. Loring (P. & S.) E. K. Findlay (P. & S.) *Oscar Dodd (Inf.) Thos. Faith (E. E. N. T.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) E. K. Findlay (Inf.) W. A. Fisher (E.E.N.T.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) D. A. Payne (Ills. Med.) F. A. Phillips (Inf.) Wm. H. Wilder (P.&S.) S. L. McCreight (C.C.S.)
3 P.M.	W. Allen Barr (C.C.S.) *Wm. E. Gamble (P.&S.)	H. H. Brown (Ills. Med.)	*J. E. Harper (P. & S.) W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)		W. Allen Barr (C.C.S.)	Geo. F. Suker (P.-G.)
4 P.M.	W. F. Coleman (P.-G.)	C. W. Hawley (P.-G.)	G. F. Suker (P.-G.)	C. W. Hawley (P.-G.)	W. F. Coleman (P.-G.) Brown Pussey (County)	

*Special operative eye clinics.

ABBREVIATIONS:

C. C. S.: Chicago Clinical School, 819 W. Harrison Street.	County: Cook County Hospital, W. Pol.: Chicago Polyclinic and Hospital, 174 E. Chicago Avenue.	Rush: Rush Medical College, W. Harrison and Wood Streets.
E. E. N. T.: Chicago Eye, Ear, Nose and Throat College, Washington and Franklin Streets. Clinics all day.	P.-G.: Post-Graduate Medical School of Chicago, 2400 Dearborn Street.	St. Luke's: St. Luke's Hospital, 1416 Indiana Avenue.
	N. W. U.: Northwestern University, 2431 Dearborn Street.	

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

VOL. XVIII

CHICAGO, MARCH, 1909

NO. 3, NEW SERIES

SYMPATHETIC OPHTHALMIA WITH REPORT OF PATHOLOGICAL FINDINGS IN TWO CASES BY DR.

EDWARD P. CARLTON, PATHOLOGIST OF
NORTHWESTERN UNIVERSITY MEDICAL COLLEGE, CHICAGO, ILL.

BY ALBERT RUFUS BAKER, M. D.

CLEVELAND, OHIO.

Case 1.—Mrs. E. L., Cleveland, Ohio, age 43, a widow, mother of three healthy children, good personal and family history. Mature cataract of both eyes, pupils active, and good perception and projection of light in all parts of the fields.

On January 16, 1905, I made an extraction with an iridectomy right eye. At the same time I made an iridectomy on another patient with a blind eye for chronic glaucoma to relieve pain. The cataract extraction was smooth, and the iridectomy satisfactory. Both patients commenced having pain the third day. The pupil was already beginning to fill with a whitish exudate, apparently extending down from the corneal wound. In the glaucoma case the pain was so severe that I enucleated the eye on the seventh day. The pathologists of the hospital reported a streptococcus infection. This seemed quite possible, as my regular assistant was ill, and I was given another interne who had charge at the time of several cases of erysipelas, and as he had had little or no experience in assisting at eye operations, exhibited considerable curiosity in examining the instruments, and I recall asking him at least twice not to handle them. The cataract case ran a typical course of severe irido-cyclitis, but was discharged from the hospital in March, two and one-half months after the operation, with a quiet eye, good perception of light, normal tension and apparently a good case for secondary operation later, with prospects of good vision. The patient was requested to report frequently at my office, but did not do so until July, three months after discharge from the hospital, and almost six months after cataract extraction, when she appeared in my office with a fully developed sympathetic ophthalmia which had lasted three weeks.

When I asked her why she had not reported sooner, she said she had taken cold in her left, unoperated eye, and was too sick to come to the office. There was a complete annular synechia uninfluenced by atropia, severe pain and ciliary injection. The operated eye was still perfectly quiet, tension good, and perception of light good. The question which eye to enucleate was a pressing one, and I finally decided not to remove either. The eye that was operated on continued quiet and never gave any pain or serious trouble subsequently. The sympathizing eye ran a tedious course, but finally became quiet. In June, 1906, both eyes having been free from irritation for at least three or four months, I made a large iridotomy with Steven's punch. A clear black pupil was secured, and with + 13. D., vision 10/200. With + 18. D. could read Jaeger No. 4. The anterior chamber was shallow, but I could never satisfy myself that the tension was much increased. After two or three months vision began to fail, and by October, 1907, all perception of light was lost; eye became soft, and was enucleated. See Dr. Carlton's pathological report on this eye below.

The sympathizing right eye remained comparatively quiet, although there were two or three slight attacks of pain during the winter of 1907-8. In June, 1908, I made a preliminary iridec-tomy, and in July extracted the lens. Her vision with + 10. D. was 5/200. The anterior chamber had not been reformed. The tension I think is slightly increased; the vision is now reduced to counting fingers at about four feet, and I have no doubt will follow the same course as the other eye and result in total blindness.

This is the first case of sympathetic ophthalmia I have met in my own practice following a cataract extraction. I saw a similar case several years ago that was operated upon by a confrere. I enucleated the eye upon which the extraction had been performed without benefiting the sympathizing eye. At the time I was inclined to think the surgeon did not have courage enough to remove the eye that was behaving badly. I think I should be much more charitably disposed after my own experience in this case. Salicylate of soda was pushed to toleration several times without much apparent benefit except to relieve pain. The stomach did not as a rule bear it well. Better results were secured from capsules of methyl-salicylate and colchicine. Apparently more benefit was obtained from the use of mercury, which was given

more or less continuously for three years. Early in the course of the disease pilocarpine was given by mouth and hypodermically, together with hot baths. Locally, hot water atropine and dionine were used with much benefit. Later in the disease atropine seemed to aggravate the pain, and was discontinued. As this is the only case of sympathetic ophthalmia in which I have had an opportunity to try the Gifford treatment with soda-salicylate, I do not feel quite as enthusiastic about it as do some recent writers.

Of course I regret that I did not enucleate the eye immediately upon the appearance of the irido-cyclitis within a few days after the cataract extraction, but I never anticipated a development of sympathetic ophthalmia six months later, and when the patient appeared at my office, the sympathetic inflammation had lasted at least three weeks, and it seemed to me that the chances for saving vision in the operated eye were better than in the sympathizing one. I recalled a case in the early years of my practice of a patient with an injured eye in which all perception of light was lost in the sympathizing eye from sympathetic ophthalmia, yet after making two or three operations, I secured fairly useful vision in the injured eye.

There is no doubt but that we have removed thousands of eyes which might have been saved in order to avoid the possibility of sympathetic ophthalmia, yet one such as I have reported makes one think that a thousand blind eyes are not worth saving, if by any possibility both eyes should be lost.

Case 2.—Mr. L. B., age 46, was injured in the left eye April 18, 1907, with a penetrating wound of the cornea from a piece of steel, which was supposed to have remained inside of the eyeball. Several unsuccessful attempts at removal were made with magnet by an ophthalmologist of a neighboring city.

I first saw the patient on July 10, 1907. He was suffering from pain in the eye, headache, sleeplessness, and had been unable to work since the injury, three months before. Radiograph negative—slight perception of light, but poor projection; large leucoma adherens irido-cyclitis; deep ciliary injection; very tender on pressure; shallow anterior chamber. Very decided irritation of right eye; photophobia; lachrymation and asthenopia. Had consulted several oculists before coming to me, all of whom advised enucleation. I concurred in this opinion, and sent him to St. Alexis Hospital and enucleated the eye July 11, 1907. Inserted artificial eye July 15. Patient returned to work in a week, and the

right eye has been quiet since. See Dr. Carlton's pathological report on this eye below.

This is a typical case of sympathetic irritation which is met so frequently. It is altogether probable that an iridectomy and prolonged treatment might have saved this eyeball, with possibly some vision, and yet I think almost every ophthalmic surgeon who has recently had under his care a case of sympathetic ophthalmia would be inclined to enucleate early. Fuchs has done well to again call attention to the proliferative changes which take place in an injured eye that causes sympathetic ophthalmia, but that does not solve, as Dr. Carlton well says, the real problem, which is "How is the other eye involved?"—nor does it help us to diagnose before enucleation between sympathetic ophthalmia and sympathetic irritation.

Report on Eye No. (2) 40—L. B. By Edward P. Carlton, M. D.

This eye, the left, after fixation in four per cent formaldehyde and hardening in successive grades of alcohol, was frozen and divided horizontally. The lower one-half was mounted in glycerin-jelly and the upper one-half was imbedded in celloidin and sectioned.

Measurements made before freezing are as follows:

Cornea	11 x 10 mm.
Globe, antero-posterior	25 mm.
vertical	25 mm.
horizontal	24 mm.

The cornea was clear but darker above and clear and yellowish in color over an oval area below.

An examination of sections shows the following findings:

1—Cornea.—There is a flattening of the pupillae at the limbus, the vessels are somewhat congested and are surrounded by considerable areas of round-cell infiltration.

The substantia propria shows two vacular areas on the nasal and temporal sides, each about half way between limbus and pupillary margin. The vessels are close to the lamina elastica posterior (Descemeti).

2—Anterior Chamber.—The anterior chamber is somewhat decreased in depth peripherally, but the sinus venosus sclerae (canal of Schlemm) is free on both sides. In the angles there is a fine, flacculent exudate containing a few cells.

3—Iris.—All the sections examined are extra pupillary through or above the m. sphincter pupillæ.

As a whole the iris has atrophied to a considerable extent, though unevenly. Near the iris roof there are several reduplications of the stratum pigmenti iridis which are adherent to processes of the ciliary body.

In the region of the m. sphincter pupillae the iris is adherent to the remnants of the lens and the iris is here greatly thickened. There are rather large areas of round cell infiltration. The chromatophones are grouped in irregular bunches anterior and posterior to the sphincter; very few show processes. Scattered through this region there can be found considerable numbers of epithelioid cells, though they are nowhere grouped together.

In other parts of the iris there are scattered areas of round-cell infiltration, but they are small. Cells of an epithelioid type are found in all parts of the iris in small numbers.

4—Ciliary Body.—The changes noted in the ciliary body are mainly those of atrophy. The muscle bundles show atrophy and the intermuscular connective tissue has undergone a hyaline change in many places. The ciliary processes on the whole are atrophied, though one, or two, in every section appears long drawn out.

No areas of round-cell infiltration are noted in any of the sections. In the anterior part of the ciliary body near the roof of the iris, in the region of the circulus iridis major, epithelioid cells are found scattered and arranged in small groups. The cell outlines are made out with great distinctness in most cases, as the tissue in which they are found is thin and atrophic. The nuclei are small and faintly staining, round or oval. The protoplasm is large in amount.

5—Choroid.—With the exception of a few small areas of round-cell infiltration noted in some sections, the only change in the choroid is one of thinning.

6—Sclera.—This tunic is thin and the perforating vessels and nerves are surrounded by large numbers of chromatophones.

7—Retina.—On the temporal side near the disk the retina is separated from the choroid by a small mass of exudate. On this side the only change is a slight amount of cystic degeneration in places. The vessels are congested.

On the *nasal* side, beginning a short distance from the disk, where it is detached by a small mass of exudate, the retina is more

or less degenerated anteriorly up to the ora serrata. The outer layers, including the outer reticular, outer nuclear and rod and cone layers, can scarcely be made out.

The retinal pigment cells are spherical and distended and show a tendency to heap up in groups and also to wander from their normal position.

8—Optic Nerve and Papilla.—None of the sections pass through the center of the optic nerve, but in those sections showing nerve and sheaths the only change noted is atrophy of some of the nerve bundles and some proliferation of the interstitial tissues.

Sections through the papilla show a proliferation of tissue and strands of this project inward into the corpus vitreum. The swollen papilla, with these strands, is easily seen with the naked eye in the sections.

9—Lens.—The central portion of the lens, both cortical and nuclear, with the exception of the lens capsule, has degenerated completely and in its place is a mass of organized exudate. Near the equator on both sides the lens capsule with the epithelium and portions of the cortical substance are fairly well preserved. The nuclear substance has degenerated and cells from the exudate have wandered in. The iris is broadly adherent to the lens capsule.

10—Corpus Vitreum.—The fossa hyaloidea is occupied by a dense mass of organized exudate. Extending from this on both sides to the ora serrata is a faintly staining mass which contains a few cells. It is probably the remains of the corpus vitreum—and is all that there is to be found in any of the sections.

From the above findings we may conclude as follows:

1—That the absence of polymorphonuclear leucocytes is against an infection.

2—That the corneal changes are those of the original injury.

3—That the iris shows proliferative iritis with posterior synechia and atrophy as the result.

4—That the changes in the ciliary body are due to changes in other parts and are not primary.

5—That the absence of exudates and opacities in the corpus vitreum speaks against a cyclitis.

6—That there has been an optic neuritis with proliferative papillitis.

7—That there has been a localized choroiditis with atrophy

and degeneration of the inner layers of the choroid and the outer layers of the retina as a result.

8—That the lens changes are those of the original injury or are the result of iris involvement.

9—That while epithelioid cells were found scattered through the iris and in one portion of the ciliary body, they were not present in sufficient numbers to suggest sympathetic ophthalmia at this stage. (Enucleation three months after injury.)

10—Finally.—That the clinical symptoms may be explained by *iritis, choroiditis, papillitis*.

Report on Eye No. (1) 41—Mrs. E. L. By Dr. Edward P. Carlton.

The eye, the left, was fixed in four per cent formalin and hardened in successive grades of alcohol. After freezing it was divided horizontally. The upper one-half was imbedded in celloidin and sectioned. The lower one-half was mounted in glycerin-jelly.

Measurements, made before freezing, are as follows:

Cornea	9 x 12 mm.
Globe, antero-posterior	24 mm.
vertical	24 mm.
horizontal	25 mm.

The cornea was opaque and presented four furrows which were possibly due to shriveling in fixing and hardening.

The nerve and muscles were cut close to the globe.

An examination of the sections shows the following findings:

1—Cornea.—The corneal epithelium is normal except on the temporal side near the limbus, where there is downgrowth of epithelium along the scar of some incision, and on the nasal side near the limbus, where the epithelium is lifted from Bowman's membrane for a short distance, forming a vesicle.

Bowman's membrane is divided and turned inward at the scar on the temporal side.

The papillae at the limbus are flattened. The sub-epithelial tissues show a moderate amount of round-cell infiltration. The vessels are not prominent, but small vessels can be traced for a considerable distance in the substantia propria. In each section two or three such vessels can be seen. In the pupillary region in the posterior one-third of the substantia propria small vessels, which are merely endothelial tubes, can be made out in all sections, though they are not numerous.

Descemet's membrane (membrana elastica posterior) can only

be traced for short distances, as it is interrupted in many places. In the pupillary region it is absent.

2—Anterior Chamber.—The anterior chamber is almost completely obliterated by broad synechia and masses of organized exudate. Some of the sections show on both the nasal and temporal sides, small pockets lined with endothelium lying next to Descemet's membrane which are remnants of the anterior chamber. The iris angle is therefore obliterated and the canal of Schlemm occluded.

3—Iris.—As stated the iris presents broad anterior synechia and is imbedded in a mass of organized exudate. The anterior surface is everywhere difficult to make out, as the iris stroma merges into the organized exudate. The posterior surface can be better followed on account of the pigment. The stratum pigmenti iridis is easily traced in the outer one-half of the iris, but in the inner one-half the pigment is broken up and scattered over a wide surface. The margo pupillaris is indistinct. The iris as a whole is greatly atrophied, but in places it is thicker than in others and here the vessels have thickened walls which appear to have undergone a hyaline degeneration. In some of the sections rather large, deeply staining areas of round-cell infiltration are found. Examining the iris with a high-power lens one finds cells scattered through the tissue which have a rather small nucleus (staining faintly) and a large amount of perinuclear protoplasm. They have an epithelioid appearance, but are undoubtedly plasma or moist cells. Typical epithelioid cells are found in considerable numbers. The pupil is occluded and secluded.

4—Ciliary Body.—The ciliary body is greatly atrophied on both the nasal and temporal sides. The ciliary processes are flattened and widened, though a few are found slender and long drawn out. The stratum pigmentum of the orbiculus shows a heaping up of the pigment in many places, and the inner non-pigmented layer has undergone proliferation in some places. In certain areas in the orbiculus the inner, non-pigmented layer is separated from the pigmented layer by a mass of cells which appears to be organized exudate. The inner layers of the ciliary processes show little change.

In nearly every section examined there are one or two small areas of round-cell infiltration.

A careful examination of the ciliary body and processes and the iris for cells of the epithelioid type and cells of the plasma and most cell type reveals the fact that these cells are present in

considerable numbers and that neither type seems to predominate.

They are especially numerous within the ciliary processes and in the iris tissue. In the orbiculus ciliaris they are very scarce in some sections, whereas other sections show considerable numbers between the pigmented layer and the muscle. In the pupillary half of the iris on each side, where, as stated, the iris is greatly broken down, cells of these two types seem to have proliferated in large numbers and are found scattered in large groups and masses between broken down iris pigment and exudate as far back as the remnants of the lens. These cells are *not*, however, within the iris.

5—Choroid.—The choroid shows little change. There are no areas of cellular infiltration or proliferation in any of the sections.

6—Retina.—On the temporal side the retina is beautifully shown in the sections and except for a slight cystic condition in places is unchanged.

On the nasal side the retina is everywhere degenerated. The layers suffering most are the rod and cone, the molecular, and the nerve fibre and nerve cell layers. The nuclear layers are narrow and the nuclei appear pressed closely together. The pigment layer is everywhere distinct.

7—Sclera.—The sclera presents nothing of interest.

8—The Optic Nerve and Papilla.—The papilla shows a fairly deep excavation. The lamina cribrosa is bowed outward and indistinct, and there is little tissue between it and the bottom of the excavation. The tissue is everywhere very thin, apparently due to atrophy of nerve fibres. The neuroglia is not prominent. The sheaths of the optic nerve and the intervaginal space show no change.

The only change noted in the optic nerve is an over-prominence of the neuroglia between the nerve bundles and a thinning of many of the nerve bundles. The neuroglia increase is probably more apparent than real.

9—Lens.—The lens is represented in the sections by two small oval bodies which are adherent on both the nasal and temporal sides to the degenerated iris. These two bodies are the remains of the equatorial portion of the lens, which have resisted operation and degeneration. They are surrounded by portions of lens capsule and contain variously-sized roundish and oval cyst-like spaces in the interior. The portions of lens capsule can be traced through the broken-down iris and exudate toward the cornea. Fibres seen streaming from these two lens portions on both

sides toward the ciliary processes and orbiculus ciliaris are probably partly remains of the suspensory apparatus and partly exudate.

10—Vitreous. The corpus vitreum is entirely filled with a flocculent exudate which appeared woolly white on division of the globe. It is almost non-cellular.

From the above findings we may conclude:

1—That the absence of polymorphonuclear leucocytes speaks against any recent infection.

2—That the changes in the cornea and lens, and possibly the iris, are primarily those of injury due to operation modified by chronic inflammatory processes.

3—That the ciliary body was secondarily involved and severely, as evidenced by the enormous opaque exudates in the corpus vitreum.

4—That the broad anterior synechia and excavation of the papilla indicate a secondary glaucoma.

5—That the changes in the iris and ciliary body show an increase of cells of the plasma and mast cell type and those of the epithelioid type, which latter are supposed to be largely of endothelial origin.

6—That, finally, the irido-cyclitis as shown is of a chronic proliferative nature, regarded by the author as presumptive evidence of sympathetic irido-cyclitis but not as the cause of the same.

636 ROSE STREET.

SOME UNUSUAL CASES OF OPERABLE CATARACT.*

BY ADOLPH O. PFINGST, M. D.

LOUISVILLE, KY.

Professor Ophthalmology, Otology and Laryngology, University of Louisville, Medical Department.

In looking over my records of cataract operations I have found several cases out of the ordinary which may prove of interest to the members of this society. Perhaps the most unique case was one of bilateral cataract occurring in a case of symmetrical ectopia lentis. It occurred in a young woman referred to me in March, 1902. The patient, who when I first saw her was 28 years of age, gave a history of having never been real well. In the last year especially she had been suffering a great deal with headache, seeing of light flashes, sensitiveness to light, and defective vision.

From the mother of the patient it was elicited that the girl had always been nearsighted and that her eyes were peculiar inasmuch as the pupils were out of position.

The patient showed such signs of inherited syphilis as irregularity of teeth, facial lines at the angles of the mouth, pronounced catarrhal deafness and general poor nourishment. Examination of the eyes revealed an excentric position of both pupils, displacement being upward and inward. The pupils were oval and rather wide. The lenses were clear, the edges being visible near the upper margin of the pupils. They oscillated with movement of the eyes. The anterior chamber was of unequal depth, shallow above and deep below where the iris was tremulous. With a concave lens ($-5.0D.$) vision in both eyes was 20-40. There was a gradual increase in the myopia and a slow opacification of the lens until 18 months later, when the cataract had so developed in both lenses that the patient submitted to an operation. Believing that an extraction would endanger the loss of vitreous I determined to bring about absorption of the lens matter. Both lenses were needled three times at intervals of 3-4 months before unobstructed pupils were obtained. About a year after the first operation, with a concave lens of 6.0 D., vision was 20-40.

This was evidently a case of congenital partial dislocation of the lenses (ectopia lentis) associated with a corresponding displacement of the pupils (corectopia). Congenital displacements of the lens are, as far as I could ascertain from the literature, nearly always incomplete, the ligament being loose only on one

*Read before the Ophthalmological Section of the Jefferson County Medical Society in Louisville, Ky., January 19, 1909.

side. They are spoken of as subluxations and occur, according to Doensch, about once in 5,000 eye cases. In partial displacements the suspensory ligament is imperfect at some place either from rupture or faulty development. Part of the lens is out of its fossa in the vitreous. It may be tilted from side to side, but more frequently the deviation is upward with some displacement to the side. It is nearly always bilateral and symmetrical.

G. G. Lewis (Arch. of O. 1904) has pointed out the influence of heredity upon the transmission of the defect, quoting corroborative statistics. He reported a family in his own practice in which 16 cases were found in six successive generations.

In subluxation the lens may remain clear or, as in my case, it may eventually become opaque. The changes in the lens are believed to be the result of interference with nutrition, or possibly of the striking of the oscillating lens against the iris.

Most of the eyes with partial dislocation become myopic on account of the loosened zonule. In those cases where the pupil extends beyond the edge of the lens a portion of the light enters the eye through the lens and a portion through the aphakic area, the resulting diplopia causing some discomfort.

After the lenses become opaque their removal by extraction or bringing about absorption by means of needle operation should be encouraged. I believe that the latter should be the operation of choice in subjects under 30 years of age, as the danger of prolapse of vitreous during an extraction would be very great in cases of this kind with a broken zonule.

The second case which I wish to report is one of complete dislocation of a cataractous lens into the vitreous. It occurred in a healthy young man of 34 years who gave a history of having been nearsighted as long as he could remember, with gradual diminution of vision. For a year or more he has been unable to see at all with the right and very little with the left eye. Examination of the right eye revealed a large posterior staphyloma and atrophic changes at the macula. There was only a bare perception of light. The left eye showed a wide pupil, deep anterior chamber, oscillation of the iris and a dislocated lens. The lens could be seen in the anterior portion of the vitreous, at times covering up almost the entire pupil.

Upon movement of his head the patient could cause the lens to float about in the vitreous irregularly. When the lens was out

of the pupillary field patient could count fingers at 16 ft. with a —3.0 D. lens.

As this was a desperate case, and believing that the floating lens would eventually destroy what little vision remained, an effort at extraction was suggested. The operation was done in January, '06, under cocaine anesthesia, before the class of the Kentucky University, Medical department. With the lids retracted by means of Desmares elevators a peripheric section was made upward and outward. The wire loop was introduced behind the lens by pushing the iris backward and the lens removed in the loop by a lever-like motion which carried the lens forward into the anterior chamber and through the corneal wound. The manipulation was done rapidly with little loss of fluid vitreous, leaving the impression with the operator that these cases are not as difficult as would seem.

This case made an uninterrupted recovery, and was gratefully appreciated by the patient, who, with a —2.0 D., combined with concave cylinder, could see 20/200 and was able to get a position as night watchman.

This is a case of acquired luxation of the lens. It can be interpreted as a congenital myopia, which became progressive and eventually resulted in liquefaction of the vitreous, dissolution of the suspensory ligament and total dislocation of the lens.

Acquired dislocation of the lens may be partial (subluxation), or when the lens leaves its cup-shaped depression in the vitreous entirely it is spoken of as a luxation. It may take place, into the anterior chamber, into the vitreous, or may go through the vitreous and sclera and lie under the conjunctiva.

Acquired dislocations of the lens result spontaneously from disease in the anterior of the eye, from high degrees of myopia, as in my case, or from traumatism. They are usually unilateral. Partially dislocated lenses of congenital origin may be progressive and finally become complete.

Lenses fully detached from their ciliary support and thus deprived of their source of nourishment nearly always become opaque. While they may remain clear a number of years, rapid opacification is the rule, cases having been reported in which the lens became cataractous in two weeks. When the dislocation has taken place into the vitreous this humor soon breaks down and liquefies, leaving the lens easily movable (*cataracta natans*). Later choroidal and retinal inflammations with secondary atrophy or uili-

ary inflammation may develop or, what is more serious and more frequent, secondary glaucoma may result. Owing to the difficulty in extracting floating lenses from the vitreous and the fact that usually during the greater portion of the day the lens does not obstruct the pupil some diversity of opinion has existed as to the treatment of these cases. However at present the consensus of opinion seems to favor operation rather than to take the chance of choroidal and ciliary inflammation, glaucoma, etc.

I have recently also seen three cases of dislocation of the lens into the anterior chamber, two of which were operated upon, the other refusing an operation.

The first of these cases occurred in a man of 45 years, who gave the history of having received a blow upon the right eye 15 years previously, followed almost immediately with marked impairment of vision. In the last two years he has had occasional attacks of pain, associated with redness of the eye. When first seen the cataractous lens was plainly visible in the anterior chamber. There was considerable pericorneal redness, and the patient was suffering pain. Intraocular tension was increased. Eserine was at once instilled into the eye to constrict the pupil and prevent the lens from dropping back into the vitreous. On the following day the patient was operated on under local anesthesia. A corneal section was made downward and outward and the lens readily delivered. Outside of a slight anterior synechia a good result was obtained, the inflammatory symptoms subsiding rapidly. He had no vision.

A similar case of dislocation into the anterior chamber occurred in a woman of 35 years, and was also of traumatic origin some 6-8 years previously. I saw this patient several times before an operation was consented to. The lens at times could be seen swinging in the vitreous apparently attached at the temporal side, and at another time in the anterior chamber. This patient also had frequent attacks of pain with slight increase in tension. She had a bare perception of light. When the operation was finally consented to the lens was hidden in the vitreous. By placing the patient in the recumbent position, face down, it was possible to get the lens back into the anterior chamber, where it was secured by the use of a myotic and subsequently extracted as in the previous case. This case resulted in a recovery with a rather broad adhesion of the iris at the site of the corneal section. Inflammatory symptoms subsided.

A third case of this kind was seen in which the lens also swung as on a hinge from the vitreous into the anterior chamber as in the preceding case; operation was refused. The eye was ultimately removed by another oculist of the city.

Dislocation into the anterior chamber occurs less frequently than into the vitreous. It may take place primarily into the anterior chamber or it may slip into the anterior chamber after having been in the vitreous for a while and undergone partial absorption and shrinkage. It is always acquired and may be brought about by traumatism or it may result from changes in the interior of the eye. This form of dislocation, on account of pressure of the lens against the iris, frequently causes considerable pain, accompanied by watering of the eye and circumcorneal injection.

In recent cases the lens may be clear, but where dislocation into the vitreous has preceded the forward luxation it is nearly always cataractous. If opaque it is easily recognizable.

Clear lenses are recognized by the golden reflex at their equator. After remaining in the anterior chamber for a short time an opacity of the cornea overlying the lens may result, and inflammatory deposit take place between the iris and lens. If allowed to remain longer cyclitis or secondary glaucoma and rapid destruction of the eye nearly always follows, therefore dislocation into the anterior chamber is considered the most serious of the different varieties of dislocated lens.

As soon as the diagnosis of dislocation into the anterior chamber is made, the use of a myotic to prevent the lens from falling back into the vitreous, and an early extraction of the lens through a peripheric corneal section is advisable.

ATHERTON BUILDING.

NOVEL IMPROVISED PROTHESIS.

BY RALPH A. FENTON, M. D.

PORTLAND, OREGON.

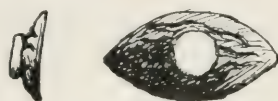
(Illustrated.)

John Hickey, aet. 69. Delayed union of head of femur, bed-fast for several months. Service of Dr. E. P. Geary at County Hospital, Portland, Oregon; reported by his permission.

O. D. removed by Dr. F. Allport in St. Paul, 1892, for traumatic injury. Socket clean, though slightly contracted, mucosa pale and smooth. Muscular motility slight.

O. S. normal. Hazel-gray iris.

Wears as prothesis for O. D. one-half a prune pit, shaved smooth by a pocket knife on edges, but still showing characteristic outer surface corrugations; inner surface naturally very smooth; to represent the iris a smooth white pearl button is set in the center



of the outer surface by embedding the brass sewing loop in a corrugation. This button projects between the lashes as worn, giving the patient a peculiar glare. At first glance one is reminded of some form of staphyloma with calcareous degeneration. This prothesis has been worn some years, and is preferred to a glass eye by the patient, who cites Dr. Allport's advice to the effect that the socket should be kept from collapsing.

Reports of Societies

CHICAGO OPHTHALMOLOGICAL SOCIETY.

Clinical Meeting of December 14, 1908.

DR. T. A. WOODRUFF, President, in the Chair.

A Case of Melanosarcoma.

Dr. William H. Wilder presented a patient, male, 57 years old, who has a growth on the right eye at the outer limbus. When first seen the growth measured about ten millimeters in diameter, was semiglobular in shape, with a papillary surface, somewhat pigmented, firm in consistency. The patient first noticed the growth last June and believes that it made its appearance suddenly. It has not increased very much in size since then. He came to the Infirmary three weeks ago and was placed under the care of Dr. Beard, who thinks that the growth has increased in size during these three weeks. Dr. Wilder excised about one-third of the mass under cocaine anesthesia. The growth was not very vascular, and was rather firm in consistency. It was rather firmly fixed, and was encroaching slightly on the cornea. There is no indication of any on the interior of the eye, even after dilating the pupil *ad maximum*. Microscopic sections showed an unmistakable carcinomatous growth. At one point the basal membrane of the conjunctiva was broken through, the epithelial growth extending beneath it.

The large epithelial cells which make up the growth are grouped together in characteristic carcinomatous patches, with alveoli surrounded by a distinct stroma. Many cells show pigmentation, particularly around the nuclei. It was impossible to determine at the time whether this pigment was melanin or the product of the healing process. It is probably the latter, the case evidently being one of melanotic carcinoma, which is extremely rare in this situation. The fundus is normal; refraction has not been measured carefully, but the man has good vision without any correction.

Dr. Dean asked Dr. Wilder how extensive an operation he would advise in his case.

Dr. Wilder stated that he believed that there was no involvement of the intraocular structure, and the question in his mind is whether he would be justified in excising the mass and carefully scraping the vitreous and then waiting for further developments, although sooner or later an enucleation of the eye would have to be done.

Dr. L. N. Grosvenor asked what the fundus findings were in the case, especially with reference to the ciliary body. LaGrane reported a case of carcinoma of the ciliary body with a large extrabulbar mass, an involvement of the ciliary body and the choroid.

Dr. Wilder stated that after thorough dilatation of the pupil he was unable to find any fundus lesions as far forward as the vena vorticosæ; nor was the vitreous clouded. Vision was 20/40; there was no detachment of the retina.

Dr. Henry Gradle asked whether it would not be feasible to excise deeply and close the wound by transplanting the conjunctiva and then use the x-ray for awhile, explaining to the patient that the slightest relapse would mean enucleation of the eye.

Dr. Frank Allport concurred in Dr. Gradle's suggestion, removing as much tissue as possible, even with transplanting the conjunctiva, and then the x-ray treatment. Of course, he said, the objection might be raised that the x-ray might injure the eye, but inasmuch as the eye is certain to be injured ultimately, nothing could be lost by such a procedure.

Dr. H. B. Young, some fifteen years ago, had a similar case in which he excised the growth very thoroughly. It recurred, and he excised the mass a second time. It recurred again, and he suggested removal of the eyeball, and the patient then passed from under his observation.

Dr. O. Tydings, about six years ago, had a case similar to Dr.

Wilder's, in which the cornea was involved. The patient gave a history of trauma fifty years before. An ulcer developed, but got well. Dr. Tydings advised an operation, but as he could not guarantee the integrity of the globe, the patient demurred and disappeared for six months. Then Dr. Tydings removed the growth in its entirety, and the only thing left was a black speck about the size of a pin-point, which is still present. Vision is perfect. The microscopic diagnosis of the tumor was melanosa sarcoma. Four months ago the patient was still well.

Dr. Frank Allport had a case twenty years ago which was diagnosed as sarcoma. He sent the man for consultation to a surgeon in another city, and when he returned the tumor had been removed. The mass was white in color; it did not recur up to ten or twelve years ago, the last time he saw the patient.

Dr. Wilder asked Dr. Tydings whether in his case an examination had been made for blastomyces.

Dr. Tydings said that the scrapings had been examined for tubercle bacilli, but not for blastomyces. No tubercle bacilli had been found.

Dr. Wilder said that cases that simulated lupus or epithelioma have proved to be cases of blastomycosis, and suggested that the tissues be examined for blastomyces.

Skin Graft for Pterygium.

Dr. Clark Hawley presented a boy, 11 years old, who had quite an extensive pterygium, the result of a firecracker burn. The growth extended nearly to the center of the cornea. The scar tissue was excised and a piece of skin taken from behind the ear of the patient's sister was transplanted into the eye with most excellent results, until about three weeks ago, when it was noticed that the skin which was involved in the symblepharon began to come forward close up to the cornea, necessitating a second operation. The fault lay in not putting something in front of the symblepharon over which it could not grow. At the second operation all of the cicatricial tissue was removed, leaving only the conjunctiva. With scissors the conjunctiva was undermined up to the central line of the eyeball, and then brought together with sutures, so that more than half of the cornea is covered with conjunctiva. A piece of skin was transplanted between the cornea and the remaining tissue, and the result was excellent, except at one little point where the tissue came up under the flap. The cornea

now is absolutely clear, and the patient has perfect motion of the eyeball.

Progressive Primary Atrophy of Iris.

Dr. Alfred N. Murray reported this case for Dr. Wood. In March, 1904, the patient, male, about 42 years of age, first noticed a change in the iris of the right eye, the pupil seeming to be irregular in outline, just as though an iridectomy had been done. This change in the iris continued until now the iris has disappeared almost entirely. The tension of the eyeball is increased, but vision has not been interfered with to any very great extent. Nothing could be elicited in the patient's history to account for the condition. A search of the literature failed to reveal a similar case.

Probable Case of Lupus.

Dr. O. Tydings presented a woman, who, when she first came to him, on June 25, 1908, gave a history of an occlusion of the left nostril and a "pimple" on the right side of the lachrymal sac, which looked like a dacryocystitis, but he could not decide whether it was this or a case of perforating ethmoiditis. Apparently there was no connection between the pimple and the ethmoid sinus. The septum was perforated, probably the result of operative procedure, although previous operation was denied. She was placed on specific treatment for a time, and there seemed to be some improvement at first, but it did not continue. Below the lachrymal sac was a collection of pus, which he evacuated. By September the lesion had extended beyond the median line of the nose. The leucodescent light was used, thinking that the case might be one of tuberculosis, and tuberculin injections were begun. The first injection was given September 22d, and every week since then one injection has been given. The patient has continued to improve under this treatment, and the lesion is healing rapidly. A distinct reaction followed the first injection, and a slight reaction followed the second. The ulceration resembled lupus, but several dermatologists who saw the patient thought that it might be a case of syphilis; others thought it was tuberculosis.

Retinitis Proliferans.

Dr. A. N. Murray presented a man, 37 years old, who three years ago, had a sudden blurring of vision while pitching hay. He said that a sort of veil came over the right eye, and after a few months he was not able to distinguish features. About a year ago the same thing occurred in the left eye, and for the past few weeks

he has been unable to distinguish anything. There was been no ocular pain, but for the last six months the patient has complained of temporal headaches. There is no evidence of inflammation, tension is normal, pupils react normally to light and accommodation, vision in both eyes is fingers at three feet. General health is good. Patient denies lues, but had gonorrhea twenty years ago. Urine, negative; Pirquet test, negative; physical examination, negative. About seven years ago he had suppuration of the glands of the neck, which lasted about a year. The diagnosis was made of retinitis proliferans.

The left fundus is invisible on account of the hazy vitreous. In the right eye, beginning at the disc, is a moderately large band of apparently white fibrous tissue, like a piece of twisted cotton, extending to the upper nasal quadrant. Fine tortuous vessels are seen all over it. There is another streak running down to the lower nasal quadrant. The vitreous is hazy.

Dr. Wilder referred to a case which he had exhibited before the Society last spring, which was a typical one of retinitis proliferans, where the strands of connective tissue were well-marked, more so than in Dr. Murray's case. The patient, a boy, twelve years old, had the trouble with his eyes come on spontaneously, without any history of injury. Vision was very much impaired. There was a very distinct response to the injection of tuberculin, so that the patient was put on tuberculin treatment, but there has been no change in his condition; if anything, the vascularity of the strands in the retina is less than it was, so that he probably will not furnish one of these interesting complications, such as intraocular hemorrhage, necessitating ligation of the common carotid artery, as was done in a case by Dr. Derby several years ago.

Dr. Tydings had a case a few years ago in a boy, 17 years old, with both eyes involved, one more than the other and far more extensively than in Dr. Murray's case. The bad eye cleared up somewhat later but with the good eye he came to see fingers at a few inches only. The patient gave a history that the condition would clear up for a time, and then the hemorrhages recurred. His mother and a sister had died of tuberculosis; the father was alive and well. The boy presented no evidence of tuberculosis, nor did an examination of the lungs and sputum disclose anything. There was one thing peculiar in this case, and that was a very chronic and obstinate constipation. The patient has been getting progressively worse.

Malignant Hemorrhagic Retinitis.

Dr. L. Wallace Dean reported the case of a young man 15 years old, who came to him about a year ago with both vitreous cavities almost filled with blood. The fundus was obscured by a dark red mass. Since then the fundus has been visible several times, and extending into the vitreous were blood vessels. The hemorrhages recurred. It was evidently a case of malignant hemorrhagic retinitis.

Traumatic Cataract.

Dr. W. E. Gamble reported the case of a woman, 34 years of age, on whom he operated recently for a cataract, probably traumatic. There was no nucleus in the cataract, simply the cortex. Within two weeks he saw a young man, 18 years old, who gave a history of traumatic cataract, the eye having been injured by a baseball seven years ago. The cataract was overripe in appearance. In the center of the lens there seemed to be an opaque spot, quite marked. He thought that there might be calcareous degeneration of the lens. On cutting through the capsule a milky fluid flowed out, and on pressure he found a well-developed nucleus.

Trauma of the Eyebrow.

Dr. H. B. Young reported a case of trauma of the eyebrow by a piece of iron, but the man did not think that the eyeball had been injured. He had traumatic mydriasis, hemorrhages into the anterior chamber and vitreous. Vision remains poor, although the hemorrhages have been pretty well absorbed. The wound in the eyebrow is entirely closed. The man had nausea and headache at the time of the injury, and there was considerable chemosis thirty-six hours afterwards.

A new Advancement Operation.

Dr. George F. Suker described a new advancement operation consisting in the shortening of the muscle with one suture, preserving the original insertion of the tendon, closing the conjunctival wound, and bringing the muscle forward to the point of insertion. The operation leaves very little deformity.

Dr. Gradle has performed an operation similar in purpose, but not similar in execution. He split the tendon longitudinally and partly the belly of the muscle, putting in the suture as Dr. Suker does, but instead of going around the edge of the muscle he went through it, drawing the ends of the suture together. He now uses not one suture, but two, tying them over aluminum

plates. There is not so much tension, but the result is disappointing, because of the adhesions which are bound to form. The operation will do very well for minor corrections, he thought, but not for major ones.

Dr. Suker said that he had tried the method for four or five years and has found it serviceable even in very large degrees of convergence.

MORTIMER FRANK, Secretary.

COLORADO OPHTHALMOLOGICAL SOCIETY.

Meeting of December 19, 1908, in Denver.

DR. D. H. COOVER, Presiding.

Traumatic Cataract.

Dr. C. A. Ringle, of Greely, showed a man of 28, who had first presented himself November 20, 1908, on account of an injury to the left eye, received 48 hours before while handling barbed wire. A barb had penetrated the upper lid, cornea and lens-capsule, avoiding the iris. There was beginning opacity of the lens, with conjunctival and pericorneal injection. Two days later the lens was considerably swollen, and at the end of a week it was pushing the iris forward. Later the lens protruded through the pupil, obliterating the anterior chamber, and showing signs of disintegration. The treatment had consisted of atropin, dionin, heat, bandage, potassium iodid, calomel and salines. The congestion had subsided, the normal depth of the anterior chamber was restored except for a slight bulging of the iris in front of the greatest swelling of the lens, particles of softened lens matter could be seen in the aqueous, vision was light perception only. At no time had the tension been elevated or complaint of pain been made.

DISCUSSION.

Dr. Jackson noted lens matter in the lower angle of the anterior chamber, that the eye was in good condition, that the lens was disintegrated and likely to be entirely absorbed.

Dr. Strickler had observed complete absorption at 35 years.

Dr. Black recalled a boy of eight in whom a staple of barbed wire fence that he was pulling on, penetrated the corneal limbus. The opaque lens was absorbing, when bullous keratitis, opaque cornea and softening of the eye occurred.

Dr. Libby believed that later on a broad dissection of the lens-capsule would be safe, and would materially hasten absorption of the cortex.

Coloboma of Iris Involving Chiefly the Pigment Layer.

Dr. Edward Jackson, of Denver, presented a man, aged 78, in whose left iris a narrow slit extended downwards from the pupil. The slit was less than one-half millimeter wide, and looked rather like a streak of pigment or a large iris cleft. The ophthalmoscope showed it to be a true coloboma. It was separated from the normal pupil by a bridge of tissue one-half millimeter wide. The movements of the iris and form of pupil were normal, the two pupils being equal. By transillumination, however, a coloboma was demonstrated, three millimeters wide, and extending from the pupil to the ciliary region. The lens and choroid were normal; there was no congenital defect outside of the eye. The ophthalmometer, however, showed 7 D. of corneal astigmatism; and with -1.50% cy. ax. 78° the eye had $4/15$ vision. Dr. Jackson had frequently encountered extensive defects of the uveal layer of the iris, as shown by transillumination, after traumatism.

Rupture of the Sclera.

Dr. W. M. Carling, of Denver, showed a woman of 24 who had first come for examination November 20, 1908, giving a history of inflammation of the right eye and neuralgic pain for four weeks previous; with rheumatism prior to any ocular disturbance. There were found a contracted pupil, complete posterior synechia, anterior chamber half filled with blood, ciliary tenderness, bulging of the sclera on the temporal side, and light perception only. The eye was intensely inflamed. Three days later rupture of the sclera, with escape of vitreous, had occurred. Dr. Melville Black now took charge of this case in Dr. Carling's absence from the city. The rupture soon closed, the inflammation subsided under use of atropin and dionin, but the eye softened and vision was not regained except ability to count fingers.

DISCUSSION.

Dr. Black thought the rapid healing and cicatrization militated against malignancy, but hesitated between scleritis and iritis as to causation.

Dr. Stevens considered that the rupture was explained better by scleritis than iritis; for although iritis, with complete synechia, had occurred, the adhesions had torn off sufficiently to prevent glaucoma and bursting of the globe.

Dr. Jackson supposed local inflammation and softening, possibly from abscess or ulcer, with rupture at this point from thinning;

and spoke of staphyloma of the sclera from gumma or tubercular growth. He thought that bleeding into the anterior chamber suggested malignant growth.

Dr. Neepor would suspect tuberculosis from the patient's general appearance.

Pulsating Exophthalmos.

Drs. D. H. Coover and E. W. Stevens presented a case in which pulsating exophthalmos had been relieved by tying the common carotid. (This case will be fully described later by the ophthalmologists in charge.)

Pearl Cyst of Iris.

Dr. Coover reported a pearly white tumor starting from the superonasal corneal limbus, with its apex free in the anterior chamber. A nail had penetrated the eye at the sclero-corneal border and traumatic cataract resulted. There was slight ciliary tenderness, but no pain. He had observed the tumor for two years.

DISCUSSION.

Dr. Jackson said that it was a traumatic pearl cyst of the iris, seemingly.

Dr. Black recalled a case of penetrating wound of the sclera, near the corneal limbus, seen about fifteen years ago. A scleral ectasia formed at the point of penetration, and a pearly cyst developed in the anterior chamber, after about two years. The ectasia had been overcome by the removal of an elliptical piece of sclera, with stitching. At the same time the cyst emptied itself, and its sac became obliterated, presumably by being caught in the scleral cicatrix.

The So-Called Circumlental Space in Glaucoma.

Dr. Jackson pointed out that the arc of illumination in the sclera between the corneal margin and the ciliary region, which has been spoken of as the "circumlental space," was in no way dependent upon the space between the margin of the lens and the ciliary processes. That under the conditions of transillumination or diaphanoscopy it was quite impossible that the circumlental space should cause any such ring of illumination. The appearance was not essentially altered by the absence of the lens, its dislocation, or congenital smallness of the lens. He then demonstrated how, with the pupil strongly illuminated with the diaphanoscope placed well back on the sclera, no such "circumlental" arc ap-

peared. But as the tip of the instrument was brought forward, so that it lighted the sclera at the edge of the anterior chamber, the arc was seen, and was best developed when the illumination of the fundus had faded so that no glare was seen in the pupil. The *circumcorneal illumination* is due to light transmitted across the anterior chamber, and concentrated by reflection from the posterior surface of the cornea upon the region of Fontana's space. The "circumcorneal arc" he found narrowed in, at least some cases of glaucoma. But this was perfectly explained by the diminished angle of the anterior chamber through forward displacement of the iris.

GEORGE F. LIBBY, Secretary.

THE OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

A meeting of the society was held on Thursday, November 12th, Mr. R. Marcus Gunn, president, in the chair.

The following card specimens were shown: Mr. R. R. James: Birth injury of cornea. Mr. A. L. Whitehead: Specimen from a case of irido-cyclitis followed by perforation of the sclerotic and orbital abscess. Mr. Sydney Stephenson: Crateriform hole in the optic disc. Mr. Rayner Batten: Acute optic neuritis in one eye with macular changes in one eye. Mr. Leslie Paton: Cataract development subsequent to X-rays.

A Case of Orbital Abscess Following Retinal Embolism.

A paper read by Mr. A. L. Whitehead. The patient, a woman aged 42, after an illness of ten days' duration, with elevation of temperature and pain in the right shoulder, suddenly lost the sight in one eye. This eye subsequently became acutely inflamed and proptosed, and an orbital abscess formed. The abscess was opened and the eye excised; pus was found to be exuding through a necrosed area of sclerotic. The auxiliary vein subsequently became thrombosed and suppurated. The absence of any primary focus of suppuration and the presence of a systolic mitral bruit rendered the diagnosis of infective retinal embolism, secondary to endarteritis, probable.

Mr. Parsons, in comment on the case, drew attention to the importance of a bacteriological examination of the blood in such cases, and showed, by narrating cases, that the behavior of the case varied greatly according to the particular organism responsible. There was also a strong selective factor as regards site in the

case of various organisms. Mr. Angus Macnab pointed out that in many cases where the abscess contents were afterwards found to be sterile the pneumococcus was the organism responsible. Mr. Whitehead replied. The pus from the eye was sterile, while that from the abscess contained some diplococci.

Nodular Opacity of the Cornea in Three Generations.

A paper read by Mr. Herbert H. Folker. Twenty-five members of this family had been examined, and the opacity was found in nine of them. In the first and second generations, five were examined, and nodular opacity was present in three members. In these cases, in addition to the opacities, fine lattice-like lines were found on conjunction with them. This latter conditions was absent in members of the third generation. The nodular opacities were fewer in number and less in density in the younger members. In all cases the opacities appeared to be situated in the anterior layers of the substantia propria, the epithelial layer not being involved. No signs of syphilis or history of rheumatism was present in any of the cases. He was indebted to Mr. George Carter, of Tunstall, who first sent an affected member of the family to him, and who had taken great pains in assisting to trace the various members of the family.

The president remarked on the large amount of work done by the society recently on the question of heredity. In only two cases had he seen nodular opacities of the cornea associated with raising of the epithelium. Mr. G. Coats described the histology of a case which he had examined. Mr. Macnab remarked on the advantage which had accrued when he shaved the cornea. Mr. Robert Fisher drew attention to some notes of a case of nodular keratitis which he showed three years ago. Mr. Holmes Spicer also described cases, and said he had scraped from them material which was found to be hyaline, with calcareous deposits in it. Mr. Doyne, Mr. Sydney Stephenson, Mr. Treacher Collins, Mr. Inman, Major Elliott, Mr. Bishop Harman and Mr. Nettleship and others also joined in the discussion, and Mr. Folker replied.

C. DEVEREUX MARSHALL, F. R. C. S.

112 HARLEY STREET, LONDON, W.

An ordinary meeting was held at the Medical Society's rooms on Thursday, December 10, 1908, Mr. Marcus Gunn, President, in the chair.

The President made sympathetic reference to the recent sud-

den death of Dr. C. E. Beevor, the president of the Neurological Section of the Royal Society of Medicine, and one of the original members of the Ophthalmological Society, whose recent work on the arterial supply of different parts of the brain was of great importance. He paid a high tribute to Dr. Beevor's qualities as a physician, colleague and friend.

Cases were shown as follows: Mr. Leslie Paton, discoid cataract; Mr. Priestley Smith, improvements in the perimeter; and Mr. Bishop Harmon, a test for binocular vision. Mr. Brooksbank James read a paper on the operative treatment of strabismus. He believed that most ophthalmic surgeons at the present day were agreed as to the importance of early orthoptic treatment, but there still appeared to be much difference of opinion as to the age at which operation should be done in the more obstinate cases, and as to the particular operation which should be performed. He criticised the after-treatment of tenotomy at the present day, which was far too casual. He himself rarely performed tenotomy, but when he did so, the case was treated in all respects like one of advancement, i. e., binocular bandaging and rest in bed for six days. During the last few years he had confined himself to advancement of the external recti in convergent strabismus, and advancement of the interni in the case of divergent strabismus, without tenotomy of the antagonists, and a deviation of 20 per cent could be corrected by the advancement of one muscle. If he required to do more, he preferred to advance the muscle of the other eye later on, if orthoptic treatment did not render this unnecessary. His operative procedure was as follows: A vertical fold of conjunctiva was picked up with forceps 3 mm. from the corneal margin and snipped off with scissors. Tenon's capsule was then opened below the tendon, and the latter seized with the Prince's forceps, excluding the conjunctiva. The tendon was then separated from the globe, its upper and lower attachments being lightly nicked with scissors, and the conjunctiva was then carefully peeled off its outer surface and allowed to retract. The stump of conjunctiva attached to the cornea was now thoroughly dissected up, together with the episcleral tissue, and the true scleral fibres exposed. A short straight flat double-edged needle was now threaded with No. 0 white silk, and passed through the conjunctiva and Tenon's capsule, just below the lower border of the tendon, and at a variable distance behind the attachment of the Prince's forceps, according to the effect desired. The needle was then passed vertically through

the superficial fibres of the sclera for about 2 mm. as close to the corneal margin as possible. It was then carried backwards parallel to its original course, and emerged through muscle capsule close to the free end of the retracted conjunctiva, about 2 mm. above the point of entry. A similar thread was passed through the upper margin of the muscle, and emerged on its return through the capsule and conjunctiva, close to the upper border. The assistant then held the eyeball in the middle by forceps applied to the conjunctiva on the opposite side of the cornea, and at the same time he drew the Prince's forceps towards the corneal margin, so that the muscle lay against the eyeball. The operator then tied the threads. The Prince's forceps were then removed, and a portion of the extremity of the muscle cut off obliquely, so as to leave a raw surface in contact with the sclera. The conjunctival wound was closed with a fine stitch. He claimed the following advantages for this operation: (1) The surgeon knew precisely what he had done by exposure of the sclera, for unless the conjunctiva was peeled off from the sclera, he might be deceived as to the hold obtained by the ligatures. (2) The ligature knots lay at some little distance from the cornea, and so did not cause irritation of the latter. (3) The hold on both eyeball and muscle was firm. (4) The stitches were easy to remove, and indeed, generally came away of themselves on the ninth or tenth day. In cases of divergent strabismus, he performed an advancement on one internal rectus first, and two or three months later an advancement on the other rectus. The dosage was regulated by the aid of the corneal reflex, the measurement of the distance at which the tendon was originally attached to the cornea, and the experience of the operator. In the case of operation on the internal rectus, the scleral stitch was first inserted, and the extremities of the threads were then carried backwards by curved needles. This was necessitated by the difficulty experienced in manipulating a straight needle in the confined space towards the inner canthus, this involving very little extra time. He had operated in some 35 cases, and where the squint did not exceed 20 degrees he had obtained very satisfactory results by the advancement of the external rectus of the deviating eye alone. An important paper was published by Landolt in the French Archives of Ophthalmology for May last, in which there were recorded the results of advancement of both recti in 25 cases of strabismus. The results were remarkable, and would, no doubt, lead to renewed interest in the subject by ophthalmic surgeons in this country.

Mr. James finally referred to the importance of ascertaining the quality of the binocular vision in cases of strabismus, for which purpose he had found the distance stereoscope shown by him at the Society in January, 1907, to be most valuable.

Major Elliot, I. M. S., read a paper entitled, "Some Observations on Cataract Extraction." He confined his remarks to four main points: (1) The antiseptics of the conjunctival sac. In his last 1,000 causes he had combined Lt. Col. Herbert's method of irrigating the conjunctiva with 1/3000 perchloride solution with his own of carefully cleansing the conjunctival sac to its farthest extent with sterilized cotton wool sponges mounted on cotton wool sticks. The latter procedure was carried out under a stream of warm boiled water. In this series of 1000 consecutive cases there had been only one case of suppuration, which was due to the fact being overlooked that an extirpation of the lachrymal sac performed by another surgeon had been incomplete, a portion of suppurating sac having been left behind. In this series the index of sepsis destructive to vision had been 0.42%, whilst if a doubtful case in which the failure of vision had been probably due to antecedent fundus changes were excluded, the index fell to 0.275%. The index of total septic incidence stood at 1.06%. He stated strongly his opinion that the methods of operation were of little importance compared with the vital necessity of keeping the wound area aseptic. (2) The laceration of the anterior capsule with a Bowman's needle before making the incision. For precision and safety in effecting the needling, for the easy sterilization of the instrument used, for the valuable information acquired as to the consistency of the cataract and the size of the nucleus (thus enabling the operator to graduate his size of incision accordingly) he considered this method had no equal. Leakage by the side of the needle need *never* occur if care be taken to use a needle whose blade does not exceed its shank in total area of cross section. It has been objected that the method is not suitable for dealing with Morgagnian cataract. In his opinion this is the very form for which it is most suitable, since the escape of lens fluid (1) deepens the chamber, and (2) indicates by its volume how large a nucleus one has to deal with. The idea that the milky fluid makes the direction of the knife difficult is a myth that has no foundation in practical experience. (3) The question of the remote danger of vitreous escape attending extraction. In deference to what he believed to be European opinion on this subject, he greatly dreaded the remote

complication of vitreous escape. His own experience on the subject was small, since his vitreous loss percentage was very low (3% in cases in which the capsule was not removed subsequent to the extraction of the lens). If it could be shown that this dread of remote complication was unfounded, he thought there would be much to be said for the intracapsular operation advocated by Major Smith, I. M. S., and others. (4) The value of intra-ocular irrigation by McKeown's method. He had used it now in well over 5,000 extractions, and the whole series of 1,000 cases above spoken of had been operated upon with the aid of this method of irrigation. He described some refinements of the method, and urged that the above series showed it to be free from danger, provided the operator were cleanly and careful. He considered it the one great advance in the perfection of the technique of cataract extraction during recent years. It was valuable alike for removing cortex of any description from the eye, and for completing safely and quickly the toilet of the iris and capsule.

Dr. Bronner (Bradford) read a short paper on "Iridectomy in Cases of Acute Iritis in which the Pupil Cannot be Dilated." Most text-books, he said, laid down the law that iridectomy should never be performed in cases of iritis so long as there was any inflammation present. Most surgeons were of the same opinion. The result was that in many cases of iritis the vision became permanently impaired by posterior synechiæ, opaque anterior capsule, and secondary glaucoma. Dr. Bronner recorded six cases of iritis in which iridectomy had been performed when there was well-marked inflammation present and with excellent results. It was of great importance that in specific or rheumatic cases general treatment should be carried out most energetically. Iridectomy should be performed in all cases of iritis in which, in three or four days, the usual methods of treatment, 2% atropine ointment, dionine, leeches, hot fomentations, had not dilated the pupil or removed the pain, or in which there was the slightest increase of tension. It did not matter in the least if there was any inflammation present or not. Iridectomy caused decrease of inflammation and pain, broke down adhesions of the iris, and prevented opacities of the anterior capsule and secondary glaucoma. Cases of serous iritis and sympathetic ophthalmia should not be operated on.

C. DEVEREUX MARSHALL, F. R. C. S.

MEETING WILLS HOSPITAL OPHTHALMIC SOCIETY,
DECEMBER 7, 1908.

SAMUEL D. RISLEY, M. D., in the Chair.

Dr. Posey showed a case of swelling and redness of the lids, the local inflammation having been of a month's standing. The case had been pronounced by a dermatologist to have been one of chronic dermatitis, set up by the use of irritating ointments used for the treatment of a mild blepharitis. Dr. Posey also showed a case of superficial punctate keratitis, occurring in a man 45 years of age. The inflammation was limited to the right eye and there was no apparent etiological factor, the patient being in good health and the catarrh of the upper air passages commonly associated with this disease being absent. The corneal haze was slowly disappearing under the local use of boracic acid, atropine and massage with dionine powder.

Dr. Charles A. Oliver exhibited a case of epithelioma of the inner palpebral angle in an adult male, which was being rapidly cured by X-ray treatment, made under the guidance of one of his assistants, Dr. Luther C. Peter.

Dr. Samuel D. Risley, under the caption "Clinical Memorandum," presented a cause for some cases of Persisten Asthenopia. He said it was not always easy to determine the essential etiologic factor in cases of asthenopia which persisted in spite of correction of refractive errors and careful professional treatment. The case reported he thought illustrated both the course usually pursued by these cases and also the cause in a considerable group of patients. A bright healthy boy, aged 10 years, the son of a physician, was brought for advice because of weak eyes. There was undue sensibility to strong light, blurring page after near work and flushed eyes. Eye grounds dark red and fluffy in appearance. Correction under a mydriatic showed a static refractive error corrected by $+2\text{ D.} + .50\text{ c.}$ in each eye. Three years later $V=6/v$ and eyes healthy and comfortable. The glasses were then neglected, during the critical years of adolescence. He returned aged 16 years with headaches and weak eyes, a crescent of choroiditis at the temporal margin of both nerves, anterior perforating, ciliary vessels full, and distending sclera in the anterior segment of the globe. A mydriatic correction was again made. The 2 D. hypermetropia had disappeared. $V.=6/v +.75\text{ axis c.}$ 90 degrees in each eye. In spite of treatment the eye would not

bear near work and he was compelled to abandon his school life for four years, after which a cautious return to his studies was permitted but with numerous threatened breakdowns after school examinations for promotion. Dr. Risley thought the case a type of the eyes which without correction of the refractive error, break down at near work and pass by distension of the tunics of the ball, through the turnstile of astigmatism, from hypermetropic refraction into myopia. In this case the distension was in the anterior segment of the ball. He called especial attention to the crescent of choroiditis at the temporal border of the nerves, which if unchecked by treatment would, at a later stage, have been a choroidal atrophy, or a staphyloma posticum of the myopic eye. The relative increase of intraocular tension, produced by the turgescence of the choroid and aggravated by any attempt at near work was a sufficient explanation for the persistent asthenopia.

Had the glasses been faithfully worn during the critical years in every child's life—from twelve to fifteen years of age—the subsequent increase of refraction with its attendant disease of the choroid and ensuing discomfort would have been avoided.

(b) Detachment of the retina or intraocular hemorrhage; a question of diagnosis.

Dr. Risley presented briefly the history of a case of sudden blindness. The onset was similar to that of detachment of the retina in the lower part of the globe, i. e. a web settling downward over the field of vision. The web or curtain was filled with black dots. In three hours it was a dense black mass apparently projected in front of the eye. A candle flame could be seen in the lower part of the field, but no reflex could be had from the fundus. A week later transillumination gave a faint gray red reflex throughout the upper half of the ball but lower half was opaque. The other eye was hypermyopic and healthy. Before the sudden occurrence of blindness the involved eye "was good." Light thrown through the dilated pupil revealed a dense blood clot filling the vitreous chamber. There had been no pain and no traumatism.

Dr. Risley in discussing the diagnosis pointed out that in view of the unusual occurrence of retinal detachment without obvious cause, and the rapidly succeeding hemorrhage, the possible presence of ciliary neoplasm should be considered, the probability of which found corroboration in the dense opacity of the lower part of the globe to transillumination. This however he thought could

not be relied upon as conclusive evidence since the blood clot would become more dense below than above, by gravitation of the mass to the lower part of the eyeball.

Dr. Charles A. Oliver demonstrated a rare type of conjunctival disturbance, a lymphectasia, in an aged male adult, which he had had under recent observation in his clinic and upon which he was making bacteriologic, chemical and microscopic studies. It presented the clinical characteristics of a lymphectasia, consisting of an aggregate of minute non-vascular pearly white excrescence occupying the entire palpebral space of the bulbar conjunctiva. The aggregate was flattened and sub-epithelial. It was situated in both eyes. It was congenital, painless, and had never become irritated or reddened. It was of a pure type, and not mixed, like that described by Leber. There were not any intraocular complications. Studies thus far made showed that it was composed of walled cysts containing lymphoid cells in translucent lymph situated beneath the epithelial plates. It was his intention to present a full report of the case at a future date.

Dr. Charles A. Oliver showed a case of extensive blepharoplasty for restoration of the left upper eyelid. The patient, a young colored woman, had burnt the tissues of the entire upper lid and the corresponding brow to such a degree as to produce almost total eversion of the lid. Fortunately, the tarsus and palpebral border were intact. The cicatrized skin was carefully dissected away, and the remaining portion of the lid was restored to its proper position. A series of broad based crescentric flaps were made. The lowest one was slid from the fronto-temporal region and sutured in place, remaking the lid. The remaining ones—three in number and all of the same character, were slid and fastened successively into the denuded areas, and so arranged as to carry the at last narrow cicatrizing area into the scalp well under the hair. A tarsorrhaphy to temporarily hold the lid into position, which was severed several months later, was made at the same time. Massage was regularly applied. At present, there is no deformity, there is free lid movement, and there are not any apparent scars.

He described the two Indian methods of procedure in such cases, having by preference chosen this very easy second plan by reason of certainty of vascularity and future integrity of size and shape of the flaps without secondary contraction. From personal experience he had discontinued the Italian (Sicilian) method as

being most distressing to the patient, and not so good in its cosmetic results. Reverdin grafts—no matter how applied, and in spite of a few fortuitous cases of prolonged usefulness extending over several years, undergo so much hyaline degeneration and shrink so greatly after varying periods of time: (the microscope showing but little true—accidental—anastomoses—and these in the main confined to the so-called deep epidermal or formative layer), that he now confines his use of this character of graft, to better and to more permanent advantage, in fresh burns after removing all overlying burnt tissues. He was of the opinion that total grafts were of but little or no value cosmetically in this peculiar type of cases.

He demonstrated his preferences for the various procedures, believing that each case in a general way was a law unto itself, and stated that in no branch of ocular surgery could the dictum of de Wecker, "more blepharoplasties have been done by the pen than by the scalpel," be absolutely true; a weakness, as our own lamented Thompson was wont to say,—born of the "literary surgeon."

Dr. Posey spoke of the value of the Wharton-Jones operation in ectropion of the upper lid, where the skin of the forehead was in good enough condition to permit of its being included in the triangular flap which is the essential part of this operation. The scarring resulting from the operation is slight and the procedure is so simple that it had recommended itself to him in a number of cases.

Dr. S. D. Risley said that in his experience, the correction of these contractions from burns, where the tarsal cartilage had not been destroyed, could often be effected, and with less deformity to the face by scars, by the use of the Thiersch grafts. He related the case of an epileptic woman who had fallen upon hot coals during a convulsive seizure. The resulting burn had led to complete exposure of the eye by dragging the tarsal border of the upper lid, to the eyebrow, and the lower lid strongly downward. They were completely loosened by dissection and their borders stitched together, and the resulting raw surfaces entirely covered with large thin grafts taken from the arm. The recovery was rapid and satisfactory. Ten years later the lids could be closed without difficulty, but she said were separated during sleep "about a quarter of an inch." The tendency to corneal disease from exposure was entirely prevented.

Dr. Posey gave a demonstration on the cadaver of removal of the lachrymal sac after the method of Meller of Vienna. He said that he had removed many sacs under general anesthesia without the injection of the region about the sac with local anesthetics and had always found the removal of the sac exceedingly difficult on account of the profuse hemorrhage which was often encountered. With the local anesthesia of the region of the sac, as recommended by Meller, however, with adrenalin and cocaine or, as he preferred, novocaine, on account of the less toxic action of this latter drug, the field of operation is rendered practically bloodless. He insisted upon the importance of following out with most faithful detail each step of the operation as outlined by Meller in his recent book on Ophthalmic Surgery and dwelt particularly on the harm of permitting any of the mucous structure of the sac to remain. In the event of a portion of the sac remaining after incomplete removal, Dr. Posey recommended complete control of hemorrhage from the cavity by packing and the removal of such portions of the sac by dissection, curretting of the cavity being deprecated.

Dr. Oliver was greatly pleased with Dr. Posey's demonstration and the ease by which Meller's operation could be almost bloodlessly done. He had successfully performed extirpation of the sac many times without ever having encountered any complication. He preferred the closed method. Care must be taken, as Dr. Posey has just pointed out, that every particle of the sac is removed, and that the nasal duct down to the inferior meatus is thoroughly cleaned. He described his plan of procedure, showing how to reach the cupola of the sac without breakage. He has found that a capable assistant who understands the details of the procedure as he usually did it, is an important desideratum. By careful dissection he avoided the internal angular artery and injury to the palpebral tendon. The condition of the accessory sinuses must receive attention in every case. The degree—if any—of epiphora and other disagreeable sequelae, several months later, is the answer to the usefulness of the procedure.

Dr. Zentmayer said that he had performed extirpation of the sac some 15 to 20 times. That formerly he had endeavored to have his first incision reach down to the sac wall. When this failed it was difficult to tell what structures still remained undivided and there was considerable guess work in the subsequent steps of the operation. He had done Meller's operation a few times and

was well pleased with the improvement in technique. A great advantage lay in that it could be done under local anesthesia and practically bloodlessly.

Dr. Zantmayer presented a patient exhibiting the condition recently described as Retino-Choroiditis Juxta-Papillaris. M., aged 17 years, apparently healthy, had been treated in spring for exudative retino-choroiditis. The patch of exudate surrounded the upper and upper-inner margin of the nerve extending out over the superior temporal vessels for a short distance. There were opacities in the vitreous and on the posterior layer of the cornea. At present there is a scar corresponding in position to the previous exudate and the vessel which it covered is considerably reduced in calibre. The field shows a scotoma extending from the blind spot to the periphery of form perception.

According to Edmund-Jensen, who has recently written on the subject, the affection occurs in healthy individuals without apparent cause and without syphilis. The sector defect in the field extending from the blind spot to the periphery is for all perception and is characteristic. He believes it due to the fact that the vessel covered by the exudate becomes thrombosed, this accounting for the extent of the blind area. The remaining parts of the fundus are normal and should a relapse occur it affects either the first affected area or another spot in juxtaposition with the disc.

Dr. Oliver exhibited and explained a number of water-color sketches illustrating the various characters of chorioretinal disease by which the clinical entity shown in Dr. Zentmayer's most interesting cases, could be more easily determined and more readily differentiated.

Dr. Risley thanked Dr. Zentmayer for his paper, but was especially interested in the field of vision, the blind area extending to the periphery. This fact he thought was important as differentiating the disease in question from infiltration surrounding and overlying a patch of choroiditis, or a tumor which would cause only an ill-defined scotoma corresponding to the location of the lesion.

BURTON CHANCE, M. D., Secy.

PROCEEDINGS OF THE OPHTHALMIC SECTION—ST
LOUIS MEDICAL SOCIETY.

Meeting October 14, 1908.

Dr. A. E. EWING, Presiding.

Papilloma of the Caruncle.

By Dr. Ernst Saxl. This patient, a boy, came to Dr. Saxl's office about September, 1905. He then removed a tumor about the size of a small pea from the caruncle of the eye. It did not show any recurrence until October, 1908, three years afterward. During that time nothing had been done. From the same place, a tumor about the size of a small pea was removed. Since then there has been another slight recurrence. It is a cauliflower growth and the bleeding was very slight.

Spontaneous Rupture of the Lens Capsule in a Cataractous Eye.

By Dr. A. E. Ewing. The eye that is here presented was first seen by Dr. Green, Sr., and myself in 1894 because of having become blind during the preceding four months. The cause of the blindness was a fully ripe cataract which it was considered best not to interfere with, as the other eye was only slightly involved. Five years later the patient returned with also a fully developed cataract in the then better eye. There being some question as to healthfulness of the first eye affected, the latter was chosen for operation, and an extraction performed which has remained successful.

Two years later the first eye passed through a mild glaucomatous attack, which was controlled by eserine and pilocarpine. Now, after seven years, he again returns with absorption of the cortex and an apparent rupture of the lens capsule, within which, attached to the capsule, are several calcareous like particles, and also a luxation of the capsule containing the nucleus partially through the pupil, more than one-half of the nucleus being in the anterior chamber. The globe is entirely quiet, vision is 1/192 and there seems to be no good reason for operative interference.

Conjunctival Cysts and Papillomata.

By Dr. Adolf Alt. It is the custom of writers on conjunctival cysts to divide them into lymphatic cysts, glandular cysts and cysts by inclusion. To these are added cysts caused by entozoa, rare in this country.

Lagrange states that conjunctival cysts are frequent. Yet Dr. Alt's experience has been to the contrary, as he has only seen four cases in thirty years of practice. Among conjunctival cysts so far observed, lymphatic and glandular ones seem to have been more frequent. The lymphatic cysts usually lie on the nasal side of the bulbar conjunctiva between the caruncle and the cornea or in the fornix, and seem to take their origin from pre-existing lymphatic vessels. In lymphangiectasiae, the walls between the enlarged lymph vessels break down and form one larger cavity, and thus a lymphatic cyst results. These cysts are mostly round or ovoid, of small size and contain a clear uncolored fluid.

The interior of such cysts is usually covered with an endothelial coat of flat cells, usually forming only one or two layers.

Cabanne draws attention to the fact that in the contents of lymphatic cysts, a considerable number of leukocytes and lymphocytes are found. Glandular cysts are found most frequently in the upper and lower fornix, and rarely in the bulbar conjunctiva, and are usually larger than the lymphatic cysts.

It is the general opinion that these cysts take their origin from Krause's or Henle's glands, and are probably due to inflammatory infections, perhaps to traumatism. In other cases they are thought to take their origin from abnormal glands in the conjunctiva. The characteristics of their epithelium are that there are several layers of cells, usually more cylindrical near the base, more flattened toward the interior.

The rarest conjunctival cysts are inclusion cysts, which are always due to an injury or an operation, and show the same changes which are found wherever live epithelial cells have become enclosed in other tissues.

Dr. Alt reports four cases.

Case 1. Young lady. Under the upper lid a tumor 11 mm. long, wider on both ends than in the center, movable with the conjunctiva. This was a glandular cyst.

Case 2. Man, who had a year previous received a superficial injury by powder. Small vesicle formed in conjunctiva between caruncle and cornea, size of pea, movable, contents transparent, colorless. Sections of anterior wall of cyst shows it lined with one layer of flat endothelial cells.

Case 3. Woman. Small colorless cyst in lower inner quadrant, movable. Section shows one layer of endothelial cells and some leukocytes and lymphocytes in coagulated contents.

Papilloma of the conjunctiva, like that of other parts of the body, consists of connective tissue papillae containing blood vessels and covered with proliferating epithelium. These tumors presenting the well known cauliflower-like arrangement are not very frequent in the conjunctiva. They seem to have a predilection for the nasal side, especially the plica zomilunaris and the caruncle. They are prone to recurrence and may assume the character of a true epithelioma and grow into the depth.

Dr. Alt showed specimens presenting the well known arrangement of connective tissue, blood-vessels and epithelium, which had been removed with no relapse.

A Case Presenting Repeated Burns of the Conjunctiva, Self-Inflicted.

By Dr. F. L. Henderson. On July 13, 1908, Sister A. was referred to me on account of what seemed to be a mild form of catarrhal conjunctivitis.

Two days later the left eye showed several small, irregular-shaped, white burns on the conjunctiva of the lower lid. One of the spots extended over the lid margin to the skin. After four or five days' treatment the spots faded out and restoration to the normal seemed imminent. The right eye, in the meantime, had recovered from the conjunctivitis.

On July 20th the patient came again with several large white patches on the right lower lid. The bulbar conjunctiva was injected and the lids were swollen. The patches presented an appearance which could only have been produced by some caustic. The largest burn was on the lower lid near the inner canthus.

I had Dr. Houwink, Dr. Hughes and Dr. Semple to see her and we all agreed that the lesion was a self-inflicted burn. I saw her every other day and the last attack gradually subsided as the previous one had. It was nearly well when one day she appeared with the right eye freshly injured and more seriously than ever before. This time the white patch extended from the middle of the lid to the caruncle and up on the ball to the cornea, involving the whole lower nasal quadrant. The burns before had never involved the ocular conjunctiva and were not deep enough to leave any dangerous scarring of the mucous membrane, but this time I saw there would necessarily be considerable symblepharon, and I realized that she might destroy her eye, if not thwarted in her purpose.

On August 24th Dr. Lucelle took smears from the necrotic area. His report is as follows:

"The smear taken from the necrotic area of the lower lid of Sister A.'s right eye August 24th shows broken down tissue with a few fibrinous shreds. No histological detail or bacteria demonstrable."

He agreed with me that the lesion was a burn. When I informed the Mother Superior of the nature of the trouble, I was given the history of a previous injury, as follows: Over two years ago the patient claimed to have cut her left wrist in lowering a window-sash, when the glass broke. The original cut was a small matter, but instead of healing, the wound gradually extended up the left arm. From this wound the surgeons were constantly removing pieces of broken glass. The wound would seem to close up and would mysteriously reopen.

This process was kept up for nearly two years, by which time there was a long granulating sore extending from the wrist to above the elbow. When dressing it one day, the surgeon found a hairpin lying in the bottom of the wound above the elbow. After this episode, the dressings were made of such a nature as to prevent any interference on the part of the patient. Recovery thereafter being normal.

I arranged with Mother Superior to have the patient isolated and kept under strict surveillance. When accused of tampering with her eyes, she flatly and sullenly denied it. However, since her isolation, the recovery has been rapid and consistent and no relapses have occurred. There is now a cicatrizing scar which will in time cause adhesion of the lower lid to the ball as far as the cornea.

These cases are attributed to insanity, hysteria and malingering. The term hysteria is being used too loosely in medicine. I believe this patient insane.

DISCUSSION.

Dr. Meyer Wiener had had a patient, a young girl, about a year ago with acute conjunctivitis. The usual remedies were used and patient got well within a few days. Later this condition developed in the other eye. After treatment the inflammation subsided, but a few days later reappeared in the first eye. In treating the eye, he found in the canthus something resembling a bit of coal, and knowing something of the nervous temperament of this patient, he consulted her practitioner and found that she

had formerly had a skin trouble, which was probably due to the use of carbolic acid. It developed that she had also been treated by an ear specialist for an ear trouble probably self-inflicted.

Dr. Llewellyn Williamson reported a case of a girl, 14 years old, who last year had been brought to him claiming to have been struck in the eye with a hat-pin while at school, and that, as a result, she could not see.

Examination showed no signs of injury but a considerable hypermetropic astigmatism which was corrected. A few months ago, the patient again presented herself complaining that the eye was watering and burning. Examination showed a distinct zone of erythema involving the upper and lower lids and about $\frac{1}{2}$ -inch of the surrounding skin.

The margins of this zone were clear-cut and well defined, and terminated abruptly in a white line just below the margins of the lids. No oedema or brawniness of the skin, no signs of any inflammation beyond the erythema. A perfectly bland ointment was prescribed, and that night Dr. Williamson was astonished to receive a telephone message that the ointment, when applied caused intense pain and burning and made the tears pour out like rain.

Several attempts at treatment with various medicaments, produced similar results, and finally the patient was sent to a dermatologist, who expressed the belief that the condition was self-inflicted. All efforts of the dermatologist to relieve the condition, failed, and the patient was then referred to a rhinologist for examination of her sinuses.

Nothing definite resulted from this examination and she was referred to a neurologist who thought the condition one of atrophic disturbances of the nerve supply of the orbicularis.

A general practitioner considered her condition due to anemia. Finally, by way of experiment, a collodion dressing was applied covering the entire area of erythema, and in two days, when the dressing was removed, the erythema was found to have disappeared. A day later, the patient returned with the eye in the same condition as before.

Convinced now that the condition was self-inflicted, the mother was sent for, and both child and mother closely questioned. Both denied the possibility of self-injury. Further questioning developed the fact that the child disliked her teacher, and when she went to school, her eyes immediately became red, tears flowed,

and she could not study. Whenever an occlusive dressing was kept on the eye, there was no erythema. When the dressing was removed, the erythema returned.

This condition continued until at the close of the school year, when the child immediately recovered.

It might be said, in passing, that the mother attributes this cure to the influence of prayer.

OPHTHALMIC SECTION--ST. LOUIS MEDICAL SOCIETY.

Meeting November 11, 1908.

DR. E. W. EWING, Presiding.

Hysterical Amblyopia.

By Dr. F. P. Parker and Dr. Wm. L. Nelson. Mrs. E. K., aged 76, nativity, Ireland, applied for treatment in the eye clinic of Washington University Hospital, August 12, 1908. She stated that she was not able to see at all, and was led to the clinic by her daughter-in-law. The following history was elicited:

Patient was third child in a family of nine. Four living. One sister died of cancer. Father lived to be 78 years. Mother, 71 years. Family otherwise long-lived and healthy. She was the mother of six children, one living. Two died of tuberculosis. One, she says, of spinal fever attributed by her to a fall.

Patient has usually enjoyed good health. About two years ago there occurred a period of about one week during which she could not hear. She states that she could see people when in their presence and knew they were talking, but she could not hear them.

One day while she was at her sister's house she was told by her sister the reason she could not hear was that she remained alone too much and did not see or hear people until she was unable to hear what they said. She agreed that this was true. There were several people present, and shortly after this conversation she could hear perfectly well. Her hearing has remained good since.

About four months ago she had an attack of gastritis, which lasted three or four days. About three months ago she noticed that her vision was not as good as formerly. At that time, and for some time previously, she had worn a pair of glasses, which one of her friends had told her, if she continued to wear, would injure her sight.

Her daughter-in-law states she has been a steady drinker, sometimes greatly to excess. On June 15, 1908, while apparently in splendid health, suddenly she experienced a flash or, as she describes it, a yellow streak passed before both eyes, and she became perfectly blind. She maintains, however, that she was able to conceal her condition from her family until five days later, when she fell and broke her arm.

External ocular examination reveals nothing abnormal. Pupils react to light and accommodation, also consensually. Muscular movements normal. Fundus normal; refraction + 3. Patient claims to have no sight, but follows movements readily. Also will walk to a designated chair across the room and sit down. Will not count fingers correctly; mis-calls objects held in front of her; unable to fix attention sufficiently to take field of vision.

The case being evidently one of hysteria, she was referred to Dr. Wm. L. Nelson for neurological examination.

Neurological Findings.

By Dr. Wm. L. Nelson. Prompt reaction of pupils to light and accommodation. Pupils equal and of normal size. Marked anesthesia of left cornea and decided diminution of corneal reflex on right side. There was no nystagmus or eye muscle defects. Pharynx anesthetic, more marked on left side. Innervation of facial muscles equal. The tear reflex, demonstrated by Spiller of Philadelphia, is present. This consists of a copious flow of tears upon stimulation of the nasal mucous membrane. In organic disease, involving the ophthalmic division of the trigeminus, we would expect to find this absent.

There is analgesia involving the left side of the face, left shoulder, and whole left upper extremity. There is also a band of anesthesia encircling the left leg, extending from the ankle to just above the knee.

There is hyperesthesia of both mammary and inframammary regions. The joint, muscle and stereognostic perception are fairly normal. There are no muscle contractures or paralyses. The knee jerks are slightly exaggerated. Achilles jerks are normal. There are no ankle clonus and the plantar reflex is normal.

Her touch sense is good. Temperature sense not tested on the first examination. While the patient maintained her inability to see, I noticed that during the examination that she was able to move around the room between tables and chairs without incon-

venience. She recognized me after seeing me the first time, and from her actions I was satisfied she could see some.

On August 26th, four days after my first examination, she was able to count fingers, but there was pronounced monocular polyopia. She said she was satisfied she could see better than on her first visit.

On August 29th she was able to tell the color of an individual's hair, and could see objects some better than on her previous visits. On September 2d her vision had improved until she could see objects about 15° from the central line of vision.

I did not see her again until October 12, when Dr. Parker and I saw her together. She said that her vision was about the same as it was when I last saw her, but assured me she would be able to see very well if she just had her glasses. She had been crying, and he said that fact caused her eyes to be a little dim.

On examination, the left cornea was still anesthetic, the right slightly so. The analgesia affecting the left side of the face and left and left upper extremity had disappeared. On the right postero-lateral part of the chest, was an area of analgesia, extending from the lower angle of the scapula downward about four inches, and from the spinal column around to the right mid-axillary line.

There was thermo-anesthesia on both lower extremities extending up to the hips. The right visual field had increased to about 25° or 30° from the central line of vision on the temporal side. The left field apparently had not increased any. The only treatment this patient received was psychical. There was distinct improvement as long as she was under observation. It is quite probable, had she continued under treatment, there would have been still greater improvement, for it was very noticeable how susceptible she was to suggestive influence.

Some Ophthalmic Cases with Specimens.

In 1900, a girl, aged four years, was brought to my clinic, showing hydrophthalmos of both eyes. The history obtained at the time was as follows:

At birth her eyes seemed to be normal. Two or three days later she developed a purulent conjunctivitis. She was treated by a member of this section. Her eyes gradually enlarged and vision was lost except for light perception in the left eye. Five years later, namely July 29th, 1905, this child was again brought to me.

On the afternoon of this day, while playing alone, she stooped and struck her right eye on a projecting knob of a chair. The mother states that immediately after the accident the eye did not present any unusual appearance. One hour after, however, the eyeball was dislocated, as is shown in the accompany photograph. Immediately after the injury, she had pain in this eye, which continued for one hour. The mother says "until after the eye had gradually worked out." I saw her at five o'clock, four and one-half hours after the injury. After having this photograph made by electric light, the child was chloroformed; the eye-lids were separated with retractors and the eyeball was gently replaced. A silk suture was passed through the outer third of both lids and a compress bandage was applied. On August 10th the stitch was removed. During this period, considerable fluid ran from the eye. One year later, my records show that only a small sunken stump remained to mark the site of what had been a hydrophthalmic globe.

Early in September of the present year, this patient was again brought to me. Her age is now thirteen years. Of late she had severe pain in the left eye. On September 12th, I enucleated the globe which I now pass for your inspection. It measures 45 mm. in the antero-posterior diameter, and 30 mm. transversely. The diameter at the base of the cornea is 28 mm. Although I have not had time to make a prolonged search in the literature, this eye is the largest one of the kind I have found recorded.

The influence which the presence of the eyeball has upon the growth of the orbit is shown in this patient, the right orbit being smaller than the left one.

Flat Sarcoma of the Chorioid.

In regard to the second case, I regret that my notes have been mislaid. A few weeks ago, D. M., male, aged fourteen years, was brought to me. The present trouble began about four months ago. Vision of the right eye had been lost for several weeks. Examination showed an ordinary picture of absolute glaucoma. Tension, was plus 2. Owing to opacities in the lens, the ophthalmoscope could not be used with satisfaction. Diagnosis: Secondary glaucoma. Enucleation was advised and was made on October 13, 1908. After hardening, the eye was bisected. The specimen shows a flat, whitish, jelly-like, elastic mass situated between the retina and the sclera. The retina is detached, from the optic nerve to the ora serrata. Microscopic examination by Dr. C. A. Vosburg shows a small round-cell sarcoma.

The interesting feature of this case is the shape of the new growth. According to Parsons, flat, diffuse or infiltrating sarcoma of the uveal tract, is extremely rare. In 1904, he was able to collect only 31 cases from the literature. The term "ring-sarcoma" has been applied by Ewetsky to those sarcomas of the choroid which involve also the ciliary body and iris.

DISCUSSION.

Dr. J. Ellis Jennings said that he remembered seeing the first case presented by Dr. Ball, and he was certainly struck with the enormous size of the eye. The question of etiology might receive some little discussion as to whether this enormous enlargement was congenital, or, whether it was acquired after an ophthalmia neonatorum. There must have been some congenital cause to account for this tremendous expansion of the eyeball in both eyes. There were countless cases of ophthalmia neonatorum with ulceration and perforation, but he had never seen anything to compare with this case.

Dr. Julius Gross said that at the Missouri School for the Blind, there was a boy who had double hydrophthalmus. He believed that Dr. Charles had also seen this patient. The boy had a brother who had been at the school prior to the time that he was there, and this brother also had the same condition. The sight was perhaps not as bad as one would have expected from the appearance of the eye. Concave glasses improved the vision considerably. He was at the school several years, and the size of the globe did not increase materially. In this case there must have been a hereditary factor, from the fact that the boy had a brother with the same trouble.

Dr. Alt said that these cases of so-called hydrophthalmus, had all to come to enucleation. He remembered a child brought to him with a double hydrophthalmus, which evidently was what is now looked upon as a congenital glaucoma. There was a deep anterior chamber and a very large pupil. This child had some vision. After treating with eserine iridectomy was proposed, and after operation was done on one eye there was decided improvement in the vision. Later operation was performed on the other eye.

Following that operation there was decided improvement. What the future history of the case was, he did not know. It was evidently a congenital affection but there was no staphyloma. He

believed that it was a congenital glaucoma which had stretched the whole eyeball.

Dr. John Green, Jr., asked whether Dr. Ball had experienced any particular difficulty in enucleating this enormous eyeball.

Dr. Wm. H. Luedde asked what was the thickness of this flat sarcoma.

Dr. Ball, in conclusion, in reply to Dr. Luedde's question as to the thickness of the sarcoma, said, that it varied from 2 to 5 mm. in thickness.

In regard to Dr. Green's inquiry, he said he had some difficulty in delivering the globe but did not find it necessary to split the canthus, succeeding in delivering the eyeball unruptured through the natural opening. In regard to the case of hydrophthalmus, the injury to the right eye produced a rupture of the sclera, and that accounted for the disappearance of the large eye after it had been replaced in the orbit.

Transplantation of Corneal Tissue.

Having seen the only successful case on record (Zirm's), Dr. Saxl made the following report and reviewal of the literature.

The operation of keratoplasty dates from 1824, when Reisinger suggested it, and made a few experiments on rabbits. Von Dieffenbach and others took up the suggestion with enthusiasm, the original operation being modified in various ways, and different instruments devised to facilitate it. The difficulties to be overcome were first clearly formulated by Marcus, viz. (1) perfect correspondence in size and form of the graft and the opening; (2) rapid transference of the graft; (3) ready fixation of the graft; (4) prevention of the inner parts of the eye from being pushed forward through the opening.

All the early attempts were without success, and the operation was gradually lost sight of, until it was brought to light again in 1872, by Power, and 1877 by von Hippel. Their cases, however, were failures, and it was reserved for Sellerbeck, 1878, to get the first successful result. His success, however, was only temporary, for though the patient, on the fourteenth day, could read medium sized writing, his vision failed by the twenty-first day, and five months later the graft was more opaque than the untouched areas. So once more the operation, as a means for the recovery of vision, disappeared, and was only employed in order to reduce ectatic corneal cicatrices and to produce firmer scars after corneal affections.

In view of so many failures, the success attained by Zirm in a case which he records, deserves wide spread recognition. He is able to report a continuance of such transparency as was present at first, eight months after the performance of the operation. The essential facts of the case are these:

A. G., a workman, 45 years of age, received a quantity of unslacked lime in each eye on the morning of August 30, 1904, and presented himself at the hospital on the same day. There was then a considerable quantity of lime still lying in the conjunctival sacs, and the membrane lining both upper lids, was swollen and reddened. The cornea of each eye was of a gray-white color, and almost opaque, hardly permitting the pupil to be made out at all. The patient left hospital on November 17th following with both cornea like ground glass, the irides just barely visible; able to count fingers at one metre with the left eye, and at half a metre with the right. He was re-admitted on November 22, 1903, showing then a very small degree of symblepharon, not sufficient to interfere with ordinary movements, with both cornea entirely opaque except for the extreme periphery above at the limbus. Vision was reduced to, knowledge of hand movements, but on both sides light perception and projection were prompt. Zirm determined to transplant the cornea to replace the scar tissue, but he had to wait until December, 1905, for suitable material, which offered itself under the following circumstances: K. B., a boy of 11, injured his right eye in July, 1905, by a fragment of iron which flew from a piece which he was striking. On admission he was found to have a small scar at the top of the cornea with an anterior synechia, and a pear-shaped pupil, behind which lay a grayish-white opaque layer. He was able to count fingers at $2\frac{1}{2}$ metres. Under chloroform, two attempts were made to extract, with the magnet, the foreign body which certainly was present. At the first attempt the iris bulged forward, but after an iridectomy, performed to permit the escape of the foreign particle, it could not be induced to present, either with the larger or the hand magnet; then, after a copious loss of fluid vitreous, the globe collapsed, and on December 7, 1905, the eye was excised. It was immediately immersed in warm normal saline solution. At the same time, A. G. was put thoroughly under chloroform and transplantation to his right cornea carried out. The first step was the formation of a conjunctival bridge below, then by means of von Hippel's trephine, a disc was removed from the peripheral

portion of the cornea of the enucleated eye. Then with the same trephine, a disc, of course of exactly the same size, was removed from the leucomatous cornea, the transparent disc placed in the gap, and the bridge of conjunctiva drawn across it and stitched over. This operation was not a success.

At the same time another disc was removed from the cornea of the enucleated eye, this time from the center of it, immediately wrapped in gauze squeezed out of warm salt solution, and kept moist and warm in a stream of aqueous vapour. With the greatest of care and not a little difficulty, a disc was then removed from the patient's left cornea and the corresponding piece of clear cornea inserted in its place, care being taken to touch it with no instrument from the beginning of the operation to the end. The new patch on the cornea fitted perfectly, both as to size and thickness, and in order to retain it satisfactorily in place, Zirm inserted two stitches in the conjunctiva, making a St. Andrews' cross of thread over the center of the flap.

A week later, the graft in each eye was clear, and with the left eye he could count fingers. In a few days the graft in the right eye began to give trouble, and had to be removed, but the left did better, and on January 12, he could count fingers with it at $3\frac{1}{2}$ metres quite readily. On February 23, on focal illumination, a very faint haze could be seen, but part of the pupil margin was actually visible. On March 11, the patient went home, the clear graft looking black against the gray, cloudy, opaque cornea. On June 25, this was still true; the cornea itself was opaque, whitish and intersected superficially, with branching vessels. The graft, however, had none of these and at its margin was very sharply differentiated from the cornea by a tendonous looking ring. Just there the tissue was so perfectly clear that details of the iris could be made out quite well. Within that ring one or two very fine lines or opacity could with difficulty be made out; except for them, the graft was quite transparent. None of the vessels mentioned above as being visible in the cornea penetrated the graft. The eye could even be examined with the ophthalmoscope and the disc carefully inspected. Vision was $5/50$, and with a convex lens $3/20$ and J. 13. The patient was able to get out by himself quite well, and even to perform such work as feeding and attending to cattle.

Zirm thus summaries the essential points:

1. The exclusive employment for the graft of human cornea, if possible youthful cornea, whose nutritive condition is favorable.

2. The exclusive employment of von Hippel's trephine, and instillation of eserine if the anterior chamber is present.

3. Deep anaesthesia, strict asepsis, and the avoidance of antiseptics.

4. The protection of the graft until it can be placed in position, between two pieces of gauze moistened with sterile physiological salt solution and kept warm in steam.

5. The holding of the graft in its place by two threads drawn through the conjunctiva and forming a cross in front of it.

6. Selection of cases.

The operation may be used also to take the place of an iridectomy or an iridotomy in cases of central cicatrices following corneal ulcers. If necessary the graft can be cut and placed a little eccentrically.

Zirm has in this case achieved a real triumph, which ought to be generally acknowledged, and which should encourage others to repeat the attempt in similar cases or circumstances.

LLEWELLYN WILLIAMSON, M. D.,

Section Editor.

SECTION ON OPHTHALMOLOGY—COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting December 17, 1908.

DR. HOWARD F. HANSELL, Chairman.

Case of Opticociliary Vein.

Dr. William T. Shoemaker reported a case of Opticociliary Vein in a male Hebrew. Such cases are of interest simply on account of the infrequency with which this anomaly is said to occur. Ten cases of true congenital opticociliary vessel have been reported, but in the opinion of Dr. Shoemaker many more have probably been seen, but passed on account of their insignificance. Of these ten, two cases were arteries and eight cases veins. The same condition may be acquired in the course of papillitis, glaucoma, etc., representing then a dilatation of capillary twigs previously too small for observation.

Dr. Shoemaker regarded his case as an errant choroidal vein, which, instead of terminating at the sheath of the nerve, as does the choroido-vaginal or posterior vortex vein, passed on to the central vessels of the retina. As it would seem to have no connection with the ciliary veins, the name "opticochoroidal" was suggested as better describing this class of anomaly.

Concerning the Disappearance of the Coloration in Siderosis Bulbi.

Dr. de Schweinitz related the case history of a man aged 72 years, into whose eye a small piece of iron had been driven one year before he came under observation, and who presented in typical manner the appearance of siderosis bulbi, the iris being of a deep rust color, while beneath the capsule of the lens there were a number of yellowish-brown spots, which have been so often referred to as pathognomonic of the presence of a metal foreign body within the eyeball. X-ray examination demonstrated the presence of a foreign body 9 mm. back of the center of the cornea, 10 mm. below the horizontal plane, and 3 mm. to the nasal side of the vertical plane. It was easily removed through a suitably placed scleral incision by the point of a Sweet magnet placed at the lips of the wound. The body weighed $1/100$ of a grain. Three and one-half months after the operation there had been almost complete disappearance of the coloration of the iris, so that it had practically assumed the color of the iris upon the opposite side. The spots upon the capsule of the lens were no longer noticeable, but a few spots in the cornea, the nature of which was not quite clear, could still be detected. The vitreous was still filled with opacities, as it had been at the original examination, there was detachment of the lower half of the retina, but the upper half of it could now be seen to be crossed by numerous pigmented striae, arranged exactly in the order of the so-called angioid streaks of the retina.

Dr. de Schweinitz referred to other examples of the disappearance of siderosis bulbi, as they have been reported by Kipp, Vossius, and Hirschberg.

Dr. Sweet said he had had the opportunity of seeing the case and had observed the disappearance of the staining of the tissues. He did not recall having seen this occur in any of the other foreign body cases which he had watched.

Dr. Hansell said the disappearance of the stain would depend upon the nature of the coloring matter. Blood pigment might be absorbed quickly, but if it was due to the deposit of oxide of iron in the tissues, the removal of the foreign body would seem to have little effect in the absorption of the rust stain. In many cases a foreign body has remained in the eye for years, without causing siderosis.

Dr. Ziegler reported a case of siderosis, with cataractous lens, in which the lens was successfully removed, but no foreign body

could be found. In two other cases of siderosis under his care, there had been no disappearance of the stain, after removal of the foreign bodies.

Dr. de Scheinitz, in closing the discussion, related the case of a young man at present under his care, who, one year before he was examined, had been struck in the eye presumably by a small piece of metal. This produced no inconvenience at the time, and nothing was done about the eye until quite recently, when cataract began to form and there was then well-marked siderosis. X-ray examination revealed the presence of a foreign body, not within the eyeball, but just outside of the scleral coat, and not in contact with it. It would therefore seem that in these instances and in others like it the source of the pigment was more likely to have been from the blood than from the foreign body itself. He thought that his own case was particularly interesting in the rapid manner in which the discoloration had disappeared.

Epithelioma of the Eyelid of Somewhat Unusual Form and Development, Together with the Results of Operative and X-Ray Treatment.

Dr. de Schweinitz demonstrated a patient, aged 80 years, from whom he had removed an epithelioma of the following description, namely: It began at the lower margin of the right eyelid and completely covered this structure, extended through and above the brow to the forehead, being 6 cm. in length and nearly 4 cm. in width. It was cake-shaped, surrounded by a hard rim of cutaneous tissues, and exhibited both macroscopically and microscopically many areas of degeneration. In other respects its microscopic characteristics were those of an ordinary epithelioma. It was dissected freely from its bed, and after granulation tissue had begun to form on the raw surface left after its removal, the patient was submitted to X-ray complete cicatrization of the area, with the exception of a nodule near the center, and only a slight ectropion and drawing of the previously extensively diseased upper lid. Somewhat later and after X-ray treatment had been stopped a tendency to recurrence was evident. Dr. de Schweinitz emphasized again, as he had on a previous occasion, the importance of removal of as much of the epitheliomatous growth as is possible under these conditions before the treatment with the X-rays is begun, and referred to another patient in whom this treatment had been equally successful and whom he had previously demonstrated before the section.

Recurrent Pterygium Treated by Removal and the Implantation of a Thiersch Graft.

Dr. de Schweinitz demonstrated a patient from whose left eye he had removed a very large recurrent pterygium, 2.5 cm. in length and nearly 3 cm. in breadth at its base, which extended from the center of the pupil to the plica, and in a triangular fold downward to the inner surface of the lower lid in the form of a symblepharon. In the center of this pterygium there was a large clear cyst. The whole mass was removed and the raw surface covered with a Thiersch graft, which became firmly attached at the end of forty-eight hours, and has remained perfectly in situ, permitting free movement of the eyeball and eyelid, which previously had been bound by this pseudopterygial mass. He commended this form of treatment, as he had practised it on several other occasions, and referred to the previous work of Hotz and Gifford in this same connection.

Dr. Zentmayer said that he wished to take this opportunity to state that in the case of epithelioma of the lid which he had showed a year ago, where healing had taken place under the use of chlorate of potash, some weeks later there occurred a breaking down of the scar, and, as he believed that it would progress, he had advised extirpation. Since that he had not been able to follow the case.

Dr. Keith, resident physician at the Philadelphia Hospital, said, in reference to the epithelioma case, that its appearance at first was that of a chalazion of the upper eyelid. This he had incised and curetted while the patient was in the out-ward department one year ago. He had noted that the contents did not have the usual appearance, and later the nodule increased in size, until it presented the character described by Dr. de Schweinitz. The X-ray treatment was temporarily discontinued after four or five applications because of the conjunctivitis produced, but had been resumed. Dr. Frescoln, chief resident physician of the hospital, thought, from his experience, that the growth could be completely cured by continued use of the X-rays.

Dr. Hosmer said that the tumor proved to be a squamous-celled epithelioma, with evidences of inflammation throughout its stroma, and destruction of the peripheral cells of many of the indipping epithelial processes. Pressure on the growth probably caused the extrusion of some of the cores, composed of horny cells.

and gave the appearance of comedones, as Dr. de Schweinitz had described.

Dr. Sweet had seen a number of instances of recurrence of epithelioma after the X-rays had caused perfect healing of the superficial tissues. He thought that in many cases this could be explained by the failure to employ rays of sufficient penetrability to affect the deeper carcinomatous cells, the treatment acting upon the superficial disease and retarding its growth, and stimulating healing of the skin.

Herpes Zoster Ophthalmicus with Involvement of the Cornea and with Oculomotor Paresis.

Dr. Chance observed these symptoms in a lady of advanced years whose habits of life were unusually active. The disease in the early days had been treated by a general practitioner. When Dr. Chance saw the patient on the seventeenth day, there was an extensive eruption of herpes on the right side of the face, and paresis of the internal and the superior rectus muscles. Later, vesicles were found at the limbus and on the cornea. There was no history of exposure, and the case was regarded as of gastro-intestinal toxemia in origin. The treatment consisted in simple lotions and in protection of the eye, and in the administration of sodium salicylate in large draughts of Vichy water. The cutaneous lesions healed rapidly; the oculomotor paresis gradually disappeared; and after four months only a small spot remained in the cornea at the site of the vesicle eruption thereon.

Dr. Harlan said that motor paralysis was a rare complication in this disease. He had seen quite a number of cases, but the motor nerves were involved in only one. In this there was nearly complete external ophthalmoplegia.

Dr. Zentmayer said especial interest attaches to the etiology of herpes zoster ophthalmicus complicated by oculomotor paresis. He thought there were strong reasons for accepting the view that it is an acute infectious disease—the immunity resulting from an attack, the specific course which it usually runs, and its occurrence at times in epidemic form. If this view is correct, it is likely that the palsies have the same origin as those which occur in diphtheria—a toxic action upon either the nuclei, the Gasserian ganglion, or the peripheral nerve. An interesting point is the rarity with which the external rectus is involved and the fact that the levator rarely escapes. As to frequency of this complication in

herpes zoster he could recall but two references in American literature (Stieren and Sulzer) since the report of his own case in 1902.

Angioid Streaks in the Retina.

Dr. Wm. Zentmayer exhibited a case of angioid streaks in the retina. The patient was an apparently healthy man, aged 33 years. This history contained nothing of etiological moment. He had come for treatment because of sudden failing sight in the right eye. Corrected V. of O. D. = 5/X; O. R. = 5/V. There was a typical dendriform ulcer of the cornea in O. D. Ophthalmoscopic examination showed in both eyes a system of ramifying and anastomosing pigment bands varying in size from one to three times the diameter of a retinal vein and in color from black through chocolate-brown to red, extending pretty much over the entire fundus. In general they extend from a similar band surrounding the disk and course and taper toward the periphery of the fundus, where there are extensive retinochoroidal changes with a somewhat mottled arrangement of free pigment and whitish, retinal epithelium. In the right eye, below a broad band which runs to the macular region, there is a horizontal extravasation of blood. In the left eye a band running toward the nasal fundus is interrupted by a small circular area of superficially disturbed retinochoroidal epithelium, giving the appearance of a rupture with extravasation of blood and subsequent absorption; the band continues beyond this in an attenuated size.

The general examination and the examination of the blood and urine were negative.

Dr. de Schweinitz briefly referred to the cases of angioid streaks in the retina which he himself had published some years ago, and all of which occurred in members of the same family. Further etiological factors, however, were not elicited. He had always found it difficult to understand how these peculiar branching lines could be produced by hemorrhages disposed in a linear-like manner throughout the fundus, and was inclined, since he had read Mr. Lister's paper, to agree with his view of the pathology of these cases.

Relation Between Correcting Lens and Vision Under Cycloplegia.

Dr. Thorington presented a paper with the following thesis: The Visual Acuity under Definite conditions is an Index of the Strength of the Necessary Spheric Lens (plus or minus) which

will Give a Vision of —, or More. These definite conditions are:

VI

VI

(1) The ability of the eye to read —; (2) the ciliary muscle at

VI

rest; (3) the astigmatism corrected with the necessary cylinder; and (4) the visual acuity noted in fractions of one-tenth ($1/10$). Two test cards of "metric test letters" and two clock-dial, astigmatic charts were shown. All letters and lines were constructed to the tangent of the angle of five minutes. According to practical experience and by careful calculation it was found that each one-tenth visual acuity represented one-quarter of a diopter sphere (plus or minus), so that when the patient's vision was represented by so many tenths it would be necessary to give him enough additional tenths (in quarter spheres) to equal ten-tenths, or normal. For example, having six-tenths vision, the patient would require four-tenths more, or a one diopter sphere, to give him normal vision. No provision, in this method of coming promptly to the spheric correction, was made for the twelve one-hundredths diopter sphere, and these small numbers must be used when the vision has

VI

been brought to —. This "Metric Letter" testing is not a substi-

VI

tute for retinoscopy, but has many interesting values, as will be found by a careful study of the paper which will be published in THE OPHTHALMIC RECORD.

Dr. Zentmayer said in reference to the letters employed that he thought that they who objected to the use of such letters as A, X, K, and other similar letters, where a certain part of the letter subtended a smaller angle than the component strokes of the letter, were right if they were contending for a scientific estimation of the visual acuity. For instance, in the letter A the apex of the enclosed triangle where the vertical strokes meet subtends an increasingly smaller visual angle than the stroke of the letter.

In Dr. Oliver's test card such letters have been excluded. For a scientific estimation of the visual acuity he believes Landolt's optotypes and similar characters are the most valuable, but not the most practical.

He said that Dr. Wallace had taught his students an approximate method for determining the amount of spherical required in an eye under the influence of a mydriatic with its astigmatism

corrected by the fractional reduction of V, but it had not the accuracy of Dr. Thorington's ingenious method.

Dr. Turner said he placed more reliance, in his work, upon the use of retinoscopy. A general discussion followed, which was participated in by Drs. de Schweinitz, Hansell, and Thorington, as to the best form of test letters, methods used in refraction, and the advantages offered by the method of confirmation, suggested by Dr. Thorington.

Foreign Body Localization.

Dr. William M. Sweet exhibited a young man who came to the Methodist Hospital, in the service of Dr. Philip H. Moore, complaining of failing vision. Discoloration of the iris indicated a possible foreign body in the eye, and the X-rays showed a piece of metal, as thin as a fine needle, and 16 mm. long, resting vertically in the vitreous, with the lower end embedded in the choroid at a point 4 mm. in front of the equator. A scar on the upper lid indicated the point of entrance of the foreign body, the man recalling a slight injury at this situation six months previously. Dr. Sweet considered the case of interest as showing the value of X-ray localization, since the size of the entrance wound gave no indication of the length of the body, and without this knowledge any attempt to extract the metal with a strong magnet would have probably resulted in the loss of the eye. The position of the body, as shown by the X-rays, with one end embedded in the structures at the bottom of the globe, indicated that extraction must be made through an opening in the upper portion of the sclera, in order to release the end of the metal caught in the choroid.

EDWARD A. SHUMWAY, *Clerk*.

SMITH-INDIAN OPERATION FOR THE EXTRACTION OF CATARACT.

LONDON, ENGLAND.

Editor THE OPHTHALMIC RECORD:

Sir—As honorary secretary of the Moorfield's Hospital Medical Council, I am requested by my colleagues to correct an error in your issue of October last. Near the bottom of page 497 it is stated that an ophthalmic surgeon "goes to India as the representative of Moorfield's for this express purpose this fall." No one has been authorized to represent Moorfield's in this matter.

Yours faithfully,

CLAUDE WORTH.

Notes and News

(Personals and items of interest should be sent to Dr. Frank Brawley,
72 Madison Street, Chicago.)

Dr. Fred Tooke has been appointed assistant oculist on the staff of the Royal Victoria Hospital, Montreal.

Dr. Wilhelm Krauss has been made Professor of Ophthalmology at the University of Marburg, Germany.

August Probsting has been made professor of ophthalmology in the Academy of Medicine, Cologne, Germany.

The appointment of pathologist to the Royal Eye Hospital, London, England, has been given to William Ettles.

Dr. J. J. Pattee, Pueblo, has recently received the appointment of oculist and aurist at Minnequa (Colo.) Hospital.

Privatdozent Dr. Wolfgang Stock has received the title of Professor Extraordinary of Ophthalmology in Frieberg, i. Pr.

George P. D. Hawkes has been made honorary assistant surgeon to the West of England Eye Infirmary at Exeter, England.

Robert Allen, assistant surgeon to the Ulster Eye, Ear and Throat Hospital, died in Belfast, Ireland, December 2, '08, aged 39 years.

Wilshaw William Grosvenor recently received the appointment of Attending Physician to the Gloucester General Infirmary and Eye Institution.

A grant of \$500 has been made to Dr. Gustav Fritsch by

the Prussian Academy of Sciences for the publication of his work on the central area of the human retina.

A new hospital known as the Hospital St. Luc, has been opened in Montreal, Canada, especially for the treatment of eye, ear, nose, throat and mouth cases amongst the school children.

Charles Edward Beevor of London, England, one of the original members of the Ophthalmological Society of the United Kingdom, died suddenly at his home in London December 5, 1908, aged 54 years.

Albert Kopff, attending oculist to St. Joseph's Hospital, Paris, France, died recently. He was at one time President of the Paris Ophthalmological Society and was associated formerly with Galewski as chief of clinic.

At a meeting of the Section on Ophthalmology of the College of Physicians, Philadelphia, held January 21, Dr. William Zentmayer was elected chairman and Dr. Thomas B. Halloway, 1819 Chestnut street, clerk, for the ensuing year.

Dr. Wenzel Matys, of Prag, died November 18th, 1908, aged 40 years. He had been awarded the title of professor extraordinary of ophthalmology on the Bohemian Medical Faculty of Prag, but the official announcement occurred only after his death.

E. A. Kamin, an optician, in Chicago, is said to have been fined \$100 January 14 for practicing medicine without a license. An inspector of the State Board of Health testified that he had gone to the office of this individual complaining of a sore throat and had been given a prescription, for which he was charged 25 cents.

An epidemic of ophthalmia is said to have occurred in New York City from bathing in certain public baths which were situated on the river a short distance below the mouth of a sewer.

The matter has been taken up by the Board of Health following the report of Dr. Herbert Knapp, oculist to the Eastern Dispensary.

The American Academy of Ophthalmology and Oto-Laryngology which meets this year in New York City, has changed the time of meeting to October 4, 5 and 6. The address on ophthalmology is to be given by Dr. Santos Fernandez of Havana, Cuba. Ophthalmologists will also be interested in hearing the address on rhinology, to be given by Professor Onodi, of Budapest, whose work on the relation of nasal and ocular disease is classical.

Mr. Simeon Snell, ophthalmic surgeon to the Royal Infirmary of Sheffield, England, will preside at the Seventy-seventh Annual Meeting of the British Ophthalmological Society, to be held in Belfast, Ireland, July 23 to July 31, 1909. The officers of the section of ophthalmology are: President, John Walton Browne, M. D., Belfast; vice presidents: Arthur W. Sanford, M. D., Cork Alex. H. Griffith, M. D., Manchester, England, and William M. Killen, M. D., Belfast; honorary secretaries: Leslie J. Paton, F. R. C. S., London, and James A. Craig, M. B., Belfast.

The Committee on Ophthalmia Neonatorum of the British Medical Association, is made up of the following: Chairman, Mr. Sydney Stephenson; Dr. R. C. Buist, vice chairman; Dr. Helm, Dr. Cecil Shaw, Mr. Arnold Lawson, who represents the British Ophthalmological Society; Dr. George Carpenter, who represents the Royal Society of Medicine, Section for Study of Diseases in Children; Dr. Ed. Sargeant, of the Incorporated Society of Medical Officers of Obstetrical and Gynecological Section, and Dr. C. J. Martin, F. R. S.

Hofrat Prof. Dr. J. Schnabel, president of the Vienna University Eye Clinic, died suddenly of apoplexy on his way to deliver his lecture in the Krankenhaus, not fifty steps from his clinic. Assistance was rendered by the physicians of Eiselberg's Clinic, but death was instantaneous. Professor Schnabel was 66 years of age and had enjoyed a life full of academic honors and great associations. He was a pupil of Edward Jaeger and at various times had charge of institutions in Innsbruck, Graz, Prag and

Vienna. He was especially well known for his work on glaucoma and myopia, and recently on the external ocular muscles. His clinic and the courses received there from him and his various assistants are well remembered by those Americans who were fortunate enough to have worked with him, as some of the best and most profitable of their post-graduate work.

We are indebted to Dr. William Osler for the following account of the death and burial of Dr. Argyll Robertson:

(*Mofussel Intelligence*, Gondal, India.)

GONDAL, January 4.—The sad death of Dr. Argyll Robertson which took place at 8 a. m. yesterday after a short illness has plunged into deep sorrow Mrs. Robertson, His Highness the Thakor Sahib of Gondal and members of his family. The distinguished doctor who had a world wide reputation, was oculist to His Majesty the King, late lecturer in Ophthalmic Surgery to the University of Edinburgh and who had retired from his profession some years ago and settled in Jersey, came to Gondal a fortnight ago to stay with H. H. the Thakor Sahib, with whom he was connected for the last twenty-five years, first as a teacher and then as a friend. The doctor came to Gondal eight years ago and by his genial and hearty disposition had endeared himself to all who had come in contact with him. This time he came here on the 22d of December, 1908, and was accompanied by Mrs. Robertson, Miss Robertson, his niece, and Kunvari Shri Taraba Saheb, the youngest daughter of His Highness, who till now had received education in England under his care.

As soon as the people came to know of the sad event, the Mahajan and the Mahomedan Jamat closed the shops as a mark of respect for the late friend of His Highness and out of loyalty to their Raja Saheb.

The funeral procession started from His Highness' residence, the Huzur Bungalow, at 5 p. m. and was attended by State Officers Jamat and the Mahajan, who walked in front of the bier. It was followed by carriages containing Mrs. Robertson, Miss Robertson, H. H. the Thakor Saheb, Yuvaraj Shri Bhoj Raj-ji, the Heir-Apparent, Her Highness the Rani Sahib, C. I., Yuvarani Shri Bakkun varba Saheb and Kunvari Shri Bakunvarba and Lalaba; Miss Henderson, companion to K. S. Taraba; the Rev.

J. S. Stevenson, M. A., of the Irish Presbyterian Mission at Rajkot, and others. The roads were lined by the police, behind whom stood the public, who were greatly impressed by the cortege. According to an ancient custom no Hindu Raja can take part in a funeral procession nor can he put on a black or a white turban as a sign of mourning, but His Highness appeared in a black turban and the Heir-Apparent in a white one. Here was a departure on the part of His Highness which was quite unprecedented in the annals of Rajput Chiefships in India, nor have ladies of royal families ever gone to the cremation ghaut; but all this was done out of the great love and friendship that the Thakor Sahib and family bore to Dr. Robertson and out of the respect that a pupil feels for his guru. Out of respect for the wishes of the late doctor his body was cremated on the banks of the river Gondali. The Rev. J. S. Stevenson read the funeral service in a very solemn and impressive manner. All present were greatly affected. Mrs. Robertson was supported by Her Highness the Rani Saheb. At the end of the service flowers were placed on the bier by His Highness and members of his family. As a son kindles his father's pyre, as a near relative performs that rite in the absence of a son, or as a pupil does that duty to his master, so did the Thakor Sahib of Gondal kindle the funeral pyre of his guru and friend, Dr. Robertson. Today the state offices, schools and other public institutions are closed out of respect for the memory of the deceased. The United Hindus and Mussalmans observed today as a Hudtal (closing of the shops). This evening a mass meeting of Hindus, Moslems and other communities was held in the Nava Dera. It was unanimously resolved to send Mrs. Robertson a letter of condolence in her sad bereavement.

New Books

Retinitis Pigmentosa with an Analysis of Seventeen Cases Occurring in Deaf-Mutes. Being an essay for which was awarded the Alvarenga Prize of the College of Physicians of Philadelphia, July, 1908. By William T. Shoemaker, M. D., Philadelphia. Laboratory examination of the blood and urine by John M. Swan, M. D., Philadelphia. With illustrations and three colored plates. Philadelphia. J. B. Lippincott Company. Price, \$2.00.

The new catalogue of the W. B. Sanders Company has just been issued and will prove of interest to all of the medical profession. It is of especial value as an index of the latest publications and is well illustrated, containing a colored plate showing the stained specimen of the spirochaeta pallida, etc. The publishers will gladly forward this catalogue free upon request.

Instruction in the Care of Eye Cases. For nurses and attendants. Compiled from practical experience in the Eye Hospital of Wiesbaden. By Dr. H. Goering, Assistant Surgeon. With a preface by Prof. Dr. Herman Pagenstecher. Published by J. F. Bergmann, Wiesbaden. 1907.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A.M.	Richard S. Pattillo (P.-G.) J. F. Burkholder (E. E. N. T.)	G. W. Mahoney (Pol.) *Geo. F. Suker (P.-G.) Oliver Tydings (E. E. N. T.)	E. J. Brown (E. E. N. T.)	G. W. Mahoney (Pol.) Rich'd S. Pattillo (P.-G.) J. F. Burkholder (E. E. N. T.)	Richard S. Pattillo (P.-G.) Oliver Tydings (E. E. N. T.)	G. W. Mahoney (Pol.) E. J. Brown (E. E. N. T.)
10 A.M.	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	E. J. Brown (E. E. N. T.)	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)
	Brown Pussey, N.W.U. Every day, 10-12 A.M.					
11 A.M.	H. W. Woodruff (E. E. N. T.)	A. G. Wipern (E. E. N. T.)	R. Hoffman (E. E. N. T.)	A. G. Wipern (E. E. N. T.)	H. W. Woodruff (E. E. N. T.)	A. G. Wipern (E. E. N. T.)
1 P.M.		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)
2 P.M.	E. V. L. Brown (Inf.) E. J. Gardner (E. E. N. T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) Wm. E. Gamble (Inf.) N. E. Remmen (Inf.) D. A. Payne (Ills. Med.) F. A. Phillips (Inf.) F. B. Loring (Inf.) Wm. H. Wilder (Inf.) Emily Selby (Inf.) H. B. Williams (Inf.) H. W. Woodruff (Inf.) N. A. Young (Inf.) *H. B. Loring (P. & S.) Francis Lane (Rush) I. B. Findlay (P. & S.) *Oscar Dodd (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Thos. Faith (E. E. N. T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) F. A. Phillips (Inf.) F. B. Loring (Inf.) Wm. H. Wilder (Inf.) H. W. Woodruff (Inf.) N. A. Young (Inf.) *H. B. Loring (P. & S.) Francis Lane (Rush) I. B. Findlay (P. & S.) *Oscar Dodd (Inf.)	E. V. L. Brown (Inf.) W. A. Fisher (E. E. N. T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) Wm. E. Gamble (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) H. W. Woodruff (Inf.) N. A. Young (Inf.) *H. B. Loring (P. & S.) Francis Lane (Rush) I. B. Findlay (P. & S.) *Oscar Dodd (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Frank Allport (St. Luke's) *Frank Brawley (St. Luke's) Thos. Faith (E. E. N. T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) E. J. Gardner (E. E. N. T.) *Paul Guilford (St. Luke's) *Casey Wood (St. Luke's) *T. A. Woodruff (St. Luke's) I. B. Loring (Inf.) D. A. Payne (Ills. Med.) F. A. Phillips (Inf.) *Wm. H. Wilder (Inf.) H. B. Williams (Inf.) Francis Lane (Rush) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) Wm. E. Gamble (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) H. W. Woodruff (Inf.) N. A. Young (Inf.) E. K. Findlay (P. & S.) I. B. Findlay (P. & S.) *Oscar Dodd (Inf.) Thos. Faith (E. E. N. T.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) E. K. Findlay (Inf.) Wm. E. Fisher (E. E. N. T.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) D. A. Payne (Ills. Med.) F. A. Phillips (Inf.) *Wm. H. Wilder (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)
3 P.M.	W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)	H. H. Brown (Ills. Med.)	*J. E. Harper (P. & S.) W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)		W. Allen Barr (C.C.S.)	Geo. F. Suker (P.-G.)
4 P.M.	W. F. Coleman (P.-G.)	C. W. Hawley (P.-G.)	G. F. Suker (P.-G.)	C. W. Hawley (P.-G.)	W. F. Coleman (P.-G.) Brown Pussey (County)	

*Special operative eye clinics.

ABBREVIATIONS:

C. C. S.: Chicago Clinical School,
819 W. Harrison Street.
E. E. N. T.: Chicago Eye, Ear, Nose
and Throat College, Washington
Franklin Streets. Clinics all day.

County: Cook County Hospital, W.
Harrison and Honore Streets,
Ills. Med.; Illinois Medical
182 Washington Blvd.
Inf.: Illinois Charitable Eye and Ear
Infirmary, Peoria and Adams Streets.

Pol.: Chicago Polyclinic and Hospi-
tal, 174 E. Chicago Avenue.
P.-G.: Post-Graduate Medical School
of Chicago, 2400 Dearborn Street.
N. W. U.: Northwestern University,
2431 Dearborn Street.

Rush: Rush Medical College, W.
Harrison and Wood Streets.
St. Luke's: St. Luke's Hospital, 1416
Indiana Avenue.

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

VOL. XVIII

CHICAGO, APRIL, 1909

NO. 4, NEW SERIES

HERPES ZOSTER FRONTALIS ASSOCIATED WITH GLAUCOMA.

BY A. A. BRADBURN, F. R. C. S.,

SOUTHPORT, ENGLAND.

The chief feature which is generally relied upon to distinguish glaucoma from iritis is the size of the pupil. A recently published work says: "In glaucoma there is increased tension. In iritis the tension is usually normal, but for those who cannot rely on their estimation of tension there are other valuable points on which to base the diagnosis * * * it is the pupil which will in most cases give us the necessary clue. In glaucoma the pupil is dilated—often pear-shaped. In iritis the pupil is contracted." Glaucoma can, however, be associated with a *contracted* pupil when the iris is fastened down to the lens capsule behind, thus shutting off the posterior from the anterior chamber of the eye. The recognition of such an atypical condition is easy if one be careful to note the plane of the iris which will be either that of the underlying lens, to which it is completely attached, or else ballooned out (iris bombé) by pressure of the aqueous behind it, the edge of the pupil by its attachment to the lens giving the pupil a characteristically cupped appearance. sa

The interesting feature of this case is the fact that, although there was undoubted increase of ocular pressure, the pupil was *not dilated*; such a combination of symptoms is quite compatible with an iritis in which the plus tension is due to congestion and swelling of the iris and increased viscosity of the aqueous fluid. What made the case still simulate iritis was the marked swelling of the upper lid and the accompanying intense conjunctival injection; in fact, a superficial preliminary examination presented a typical picture of iritis, and had not the eye been most carefully scrutinized the instillation of a mydriatic would have seemed urgently necessary. On account of the œdema of the upper lid making recognition of increased intra-ocular tension difficult, this feature, contra-indicating the use of a pupil-dilating agent, could easily have been overlooked. Had, therefore, a mydriatic been

instilled, as symptoms seemed to call for, a most unfortunate result would assuredly have followed. The cultivation of a faculty for observing minutiae of detail is the secret of making correct diagnosis in eye affections. Now, not only had Dr. Weldon C. Carter correctly estimated the presence of increased tension, but had further noted that there was an *absence of the rose-red ring of ciliary injection* around the corneo-scleral margin which is always present in inflammation of the iris and ciliary body. He had also noted that the cornea was clear and bright and the iris markings were not obscured, and the pupil was fairly mobile. It was plainly evident, then, that a combination of signs was present which were contradictory in character, and for this reason desired my opinion to help to solve the problem.

The patient was a single woman, aged 53 years, the subject of rheumatoid arthritis attacking mainly the angle and shoulder-joints. Her skin was hot and dry, the tongue was furred, and the left side of the face and head were dusky-red and congested. For three days she had been suffering from a most intense pain radiating from the left eye over the forehead, the left side of the nose and face. As already stated, the upper lid was considerably swollen and in a condition of partial ptosis. The conjunctiva lining the eyelids was congested and to a certain extent the ocular portion as well. Some thin, transparent mucus was present as well as profuse lachrymation, and the eye was very sensitive to light and even to the slightest touch. The pupil was four millimetres in diameter, not perfectly circular, and moved under light stimulus. The color and markings of the iris were unaltered, the cornea reflected brightly and the media were perfectly clear. The anterior chamber was shallow, and gentle careful palpation revealed increased tension. Some recession of the optic nerve head could be seen, but was not in the condition associated with the later stages of glaucoma. The temperature and pulse were normal. There was another symptom which was out of all proportion to the objective signs, and this was the severity of the pain, its intensity being such as is usually associated with an attack of *acute glaucoma*. The clearness of the cornea, the absence of dusky venous engorgement of the ocular conjunctiva, as well as the absence of extreme hardness of the eyeball negated a diagnosis of acute glaucoma. Against the case being iritis was the mobility of the pupil, the clearness of the texture of the iris, and the absence of ciliary injection. It was evident, then, that the increase of tension was only a secondary

manifestation of a cause which had not so far revealed itself. When the patient first consulted Dr. Carter, complaining of the severe pain in and around the orbit, he considered the probability of herpes zoster and kept this probability in view until the development of the eye affection led him to weigh the possibility that the cause might arise from the eye itself. Twenty-four hours after my seeing the patient a crop of vesicles developed on the forehead, which at once revealed the true nature of the affection.

During the course of the disease a change came over the condition of the eye which entailed the necessity for a second consultation. This time the eye was found to be free from pain, photophobia, and sensitiveness to touch. The tension was subnormal, the anterior chamber deep, the pupil semi-dilated and immobile, and the texture of the iris was partially obscured. The explanation of these altered appearances was simple. There was evidently a thin viscid but transparent mucoid secretion present in the aqueous which accounted for the loss of transparency of the media and obscured the texture of the iris. The minus tension could be attributed to the defective secretory function of the ciliary body, due to the paralyzing effect of the affection on the long ciliary nerves. These symptoms indicated the urgent necessity of preventing adhesions forming between the iris and the lens capsule which the viscid mucus in the anterior chamber of the eye tended to produce. The use therefore of a mydriatic was obviously required now as much as it was contra-indicated in the early condition and under this treatment the eye rapidly recovered.

The case is considered worthy of record if only on account of the manner in which it indicates the importance of observing the minutest details and correctly gauging their true indications, and how it is possible for the so-called classical symptoms at times to become absolutely misleading.

SOUTHPORT.

A MODIFICATION OF BULLER'S SHIELD.

BLAKER J. KNAPP, M. D.

EVANSVILLE, IND.

(Illustrated.)

Knowing that the non-infected eye sometimes becomes infected with gonococcus laden pus through a badly fitted Buller's shield of the usual type, I believe this modification to be worthy of description.

It is built up of flexible collodion, cotton and a large, deep watch crystal. The bridge of the nose, side of the nose, and infra-orbital ridge are built out with superimposed layers of collodion and small pledgets of cotton until a circular ridge is formed, upon which the watch crystal rests evenly, and clear of the cilia when the eye is open.

The crystal is then fastened on by covering its edges with cotton and collodion. An opening is left at the temporal side for ventilation and through which application may be made. If the collodion begins to curl at the edges, they may be bound down with a fresh application.

The freedom of movement afforded to the unaffected eye is a source of comfort to the patient, and the wall of collodion covered cotton seems to afford perfect protection.



The accompanying photograph, which shows the method of application, was taken after the discharge had ceased in the left eye.

AN IMPROVEMENT ON THE CROSS-CYLINDER.

J. N. RHOADS, M. D.,

PHILADELPHIA, PA.

(Illustrated.)

The cross-cylinder is made much more efficient by having an *empty ring* attached to its handle. This ring should have the same diameter as the cross-cylinder, which I prefer to be an inch and a quarter, and be so constructed that when open and ready for use the empty ring should stand off at a right angle from the other ring (as shown in cut), or, if the inch and a half ring is used, it may be allowed to hang down about thirty degrees obtusely, but when closed should exactly coincide with the cross-cylinder ring. This will make the new instrument just as handy as the old, and yet there will be eighteen different positions in which it may be held, while the old one can only be held in four.

Every operator must have noticed the uncertain answers of a patient who was having a cross-cylinder turned in front of his eye, and that the uncertainty increased with the intelligence of the patient, and with the number of times the old instrument was being used. Such a patient thinks that he is being fooled, as he sees the same glass before his eye in each one of the four positions. By the use of the instrument with the *empty ring* joined to it all the doubt and mystery disappears.

In using the instrument I invariably begin by placing the shadow-test correction before the patient's eye, both sphere and cylinder—if they are indicated—and then I say: "Fix your eye on the last letter in the lowest line you can read, as I am going to put three glasses before you and I want you to tell me which one you would rather have.

"First?" (*Plus* cylinder on line of axis.)

"Second?" (*Minus* cylinder on line of axis.)

"Third?" (*Empty ring* in front of eye.)

I change the glass or not, according to reply, and then swing the cylinder for axis. Then I try with minus and plus *spheres* and *empty ring*,—using the instrument described by me in this journal last year,—making the changes indicated. I then go back to the improved cross-cylinder, and so continue from one to the other, until the axis does not budge and the *empty ring* is always chosen.

I believe the *empty ring*, whether it is used with spheres, plane cylinders, or cross cylinders, to be a fundamental principle in case-testing, and that ultimately it will be so regarded.

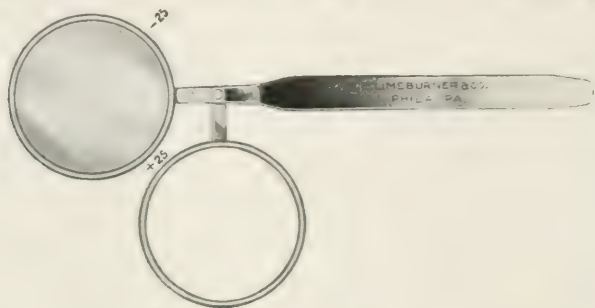
It will be noticed that I claim eighteen different positions in which the new instrument may be held in testing, while the old

one at best can only be used in four, and actually is only used in *two*.

I think this will be easily understood. Take a case, for instance, with a hyperopic astigmatism axis at 90. I would first place the axis of the *plus* cylinder at 90, and then at 180, and then use the *empty ring*. The next time I would use the *plus* cylinder at 90, an *empty ring* second, and finish up with *plus* cylinder at 180.

The second series I would begin with the *minus* cylinder at 90 and then at 180, and then use the *empty ring*. Again I would start with *minus* cylinder at 90, *empty ring* second, and finish with *minus* at 180.

The third series I would begin with *empty ring* and follow with *plus* at 90, and then with *plus* at 180. Beginning again



with the *empty ring* I would follow it with *minus* cylinder at 90 and wind up with it at 180.

Of course it is not necessary to go through each of the three series just as given above. The first series could be used alone, as could each of the others, going from one to the other only for verification.

If, however, all these maneuvers are carefully carried out, and both quarters and twelfths are used separately in the test, and the patient while being tested for spheres chooses the *empty ring* three times consecutively, and, likewise, chooses the *empty ring* three times when the improved cross-cylinder is being used, there will be no need of the patient returning three or four days in succession for verification under mydriatic. And, indeed, it will be unnecessary for them to return for "sine myd" examination if the patient is under forty. I hope I may not be misunderstood in saying that after a test of this kind the operator may without fear and trembling write the prescription, having a decided consciousness that nothing better can be done for the patient.

An oculist using this instrument and "following where it leads," is bound to forge ahead of his competitors who do not use it, and, moreover, will have the satisfaction of having all his cases correctly measured for glasses—and, I nearly said, none of them complaining. Remember, *follow where it leads*. How often does an operator think the shadow test at fault when the cross-cylinder leads him in an opposite direction, but upon re-examination finds that he has not handled his retinoscope with sufficient care, and that the cross-cylinder was leading him into the right way. Either the retinoscope or the cross-cylinder *can* do the work alone. But they count the most when they are made to help each other. If I had to make a choice between the improved cross-cylinder and the shadow test—while I would be loath to lose either—I would keep the improved cross-cylinder.

AN IRIS FORCEPS.

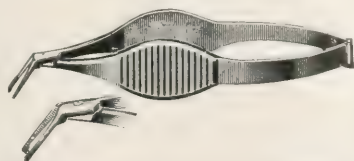
LEE MASTEN FRANCIS, M.D.,

BUFFALO, N. Y.

(Illustrated.)

The iris forceps which appears in the accompanying drawing commends itself on account of the following points:

1. While sufficiently strong to be stable, its small size and light weight makes manipulation easier than with a larger and less delicate instrument.
2. The teeth are placed in the rear and are smoothed down so that when the blades are closed no uneven surface is presented to engage in the wound or prematurely entangle the iris.



3. A firm and steady hold is permitted on account of the wide grasp for finger and thumb.
4. The blades open readily so that control is easy.
5. The instrument being made with an aseptic lock and a threaded pin, is readily taken apart for cleaning.
6. On account of the crossed blades the forceps may be introduced through a very small corneal incision.

The forceps is made by V. Mueller & Co. of Chicago, and F. A. Hardy & Co., Chicago.

Reports of Societies

OPHTHALMIC SECTION—ST. LOUIS MEDICAL SOCIETY.

Meeting, December 9, 1908.

Dr. A. E. EWING, Presiding.

Gun-Shot Wound of the Eyeball.

By Dr. John Green, Jr.—J. E. C., 32 years, was shot in the left eye at 11:30 a. m., October 25, 1908. The shotgun was discharged to the right of and about twenty-five yards from the patient, and at an angle of about 30° with the plane of his body. Vision was immediately abolished. He was seen by a physician, who applied a moist antiseptic dressing and directed him to consult an oculist at once. Two hours after the accident, or at 1:30 p. m., Mr. G. came under my observation. I found a punctured wound of the lower lid at about its middle third, the point of emergence on the inner side of the lid being 5 mm. further to the left than the point of entrance. 5 mm. down and out from the corneal limbus was a small penetrating wound of the sclera. R. V. 18/12, L. V. hand motions at 6 inches. The pupil dilated moderately well under atropine, but was flattened at the outer, lower margin.

The ophthalmoscope revealed a large blood clot in the lower part of the vitreous. Fundus reflex discernible up and in. A small, doubly refracting spherule (bubble of air?) could be seen just above the upper border of the blood clot. At 6 p. m. the same evening an X-ray localization was made in Dr. Carman's office, the picture being taken by an electrician, who was visiting Dr. Carman. This picture indicated that the shot had perforated the sclera posteriorly and lodged in the orbital tissue 2.5 to 3 mm. behind the eye. Treatment consisted of hot saline irrigation 10 per cent argyrol, and atropia. Internally, calomel and saline purge.

October 27, eye quiet, pupil well dilated and circular, V. 1/15 R, potassium iodide gtts. X increasing terdie. October 30, V counts fingers at eight feet. Ophthalmoscope showed much dimmer reflex from the upper part of the fundus. November 1, the patient had a severe pain in the eye lasting about five hours. The ophthalmoscope showed a fresh mass of blood lying on top of the original clot. V. hand motion at three feet. Dionin 5 per cent; later 10 per cent ordered.

On November 10, at the suggestion of Dr. W. Nobbe, who saw the patient in consultation, he was given a pilocarpine sweat, which was repeated on the following day. Diaphoresis was not satisfactory on either occasion. November 11, a second X-ray localization was made by Dr. Carman, which indicated that the shot was contiguous to the globe, perhaps actually attached to the sclera. A third localization, November 20, gave results identical with that of the second. The case, then, is a border line one, in which it is difficult to state whether the shot is in, or just outside, the sclera. In order to secure further light on this question another plate was exposed in the following manner: One-half of the plate was exposed with the patient directing his eyes upward, the other half with the patient directing his eyes downward. This picture shows very clearly that the shot has moved from the position it occupied when the eyes were directed up, to an entirely different position when the eyes were directed down. Furthermore (the shot having been slightly flattened by its passage through the tissue), it is possible to discern that the direction of the axis of the shot is not the same in the two positions. The shot was apparently moved along a great circle of the spherical globe and the axes of the shot represent tangents to the circle at the first and second positions.

It should be borne in mind that the patient is a man of large frame and may possess an eyeball 1 or 2 mm. longer in the antero-posterior axis than the average eye (which is represented in the localizing diagram). As the fellow eye is slightly hyperopic (1D.) it is not likely that there exists any axial elongation incident to myopia.

At present time $V=p. 1.$ (candle flame at 2m.). Projection is defective.

Discussion—Dr. Meyer Wiener at a previous meeting had presented some plates of a patient who had a foreign body in the eye similar to Dr. Green's case, in which it was doubtful whether the piece of steel was in the eye or had gone on through. He had one picture taken with the patient's eye directed upward, and one with the eye directed downward. He had used the Sweet localizer, and it was shown clearly that the foreign body was in the sclera. Since then, he had had in mind a method for exactly localizing foreign bodies, which he had not yet had a chance to try, i. e., to use threads saturated with bismuth solution, placing them across the cornea in such a way that it would be impossible to measure the

relative distance exactly. He did try, in this other case, sticking the point of a needle under the conjunctiva and taking a picture of this.

Dr. E. H. Higbee had seen a case in which the Sweet localizer was used, and when the picture was taken it showed the foreign body, a shot, to be outside of the eyeball. In reality, the shot was within the eyeball and was pressing against the sclera and bulged it up to such an extent that it gave the appearance in the picture of being on the outside.

Dr. J. E. Jennings referred to a case he had seen, the patient being a young man who was shot in the eye with bird shot. Dr. Wells made a localization and stated that the shot was 6 mm. back of the cornea on the temporal side, and 6 mm. below the median line, resting against the sclera. The shot was easily removed through a little button-hole flap of the sclera. In any case where there is any doubt about the position of the foreign body, and where there is no light perception, it seemed to him that the best thing to do would be to enucleate the eye and take no chances.

Use of Cycloplegic in Refraction.

By Dr. F. E. Woodruff—The writer believes the use of cycloplegics to be of great importance to both ophthalmologists and patients, and while the majority of ophthalmologists in this country use cycloplegics to a greater or less extent, there are some who claim to get better results without them. He admits that perhaps in many cases as good results can be obtained, but only with great loss of time and repeated visits to the oculist. He gives as his reasons for advocating the use of cycloplegics, 1st: Hypermetropes, because of spasm of accommodation, frequently appear myopic and refuse to accept plus lenses even after repeated trials. 2d: Hyperopic astigmatism sometimes appears to be myopic astigmatism. 3d: In simple hypermetropia, correcting the manifest will relieve the symptoms for the time being, but they frequently return and one can never know, without a cycloplegic, what is the total hypermetropia.

4th. Myopes frequently accept, under a cycloplegic, a weaker glass than they select without one. Low grades of astigmatism, either with or against the rule, are more easily and accurately detected with a cycloplegic.

5th. There is less loss of time for the patient, for while the cycloplegic may take him from his usual vocation for two or three days, unless a cycloplegic is used, repeated visits to the ocu-

list are necessary, and the amount of time lost is, in the aggregate, much greater. This is especially the case in patients at a distance, to whom a visit to the oculist means both hotel bills and railroad fare.

6th. The mydriatic effect of the cycloplegic enables one to examine more thoroughly the periphery of the lens and fundus. Any difficulty in ascertaining the true refraction, owing to the enlarged pupil, can be overcome by the use of the stenopaic slit, which the writer considers of invaluable aid in refractive work.

He much prefers the shadow test to the ophthalmoscope as an objective method of determining the refraction; it being a very difficult matter for the operator, even after long practice, to entirely relax his accommodation. The shadow test, especially when used with a cycloplegic, being much more rapid and accurate, and greatly facilitates refraction, especially in routine hospital work.

The writer believes, however, that the trial case is the final resort in refraction, and that the findings at the trial case are the ones from which glasses must be prescribed. In patients under forty, he habitually uses the cycloplegic unless there is some especial contra-indication, and when occasion seems to demand he uses cycloplegics in even older patients. He believes that many times this custom facilitates the ordering of first reading glasses for presbyopes. Of course, in such cases one must be on guard against increasing tension and probable glaucoma. This danger is small, however, with homatropine.

Regarding the kind of cycloplegic, choice may be had between aqueous and oily solutions, tablets and discs of various medicaments, such as homatropine, scopolamine, atropine, etc. As a rule, the writer uses homatropine in solution, in the strength of one grain to a drachm, instilling one drop at bed-time and repeating the instillation every ten or fifteen minutes for an hour the next morning.

In cases of strabismus, spasm of accommodation, astigmatism against the rule and mixed astigmatism, he believes atropine to be preferred. It is his custom, in all cases, to determine thoroughly the manifest error of refraction, and the power of the recti muscles, and the relation between muscles of convergence and accommodation, before using any cycloplegic.

Discussion—Dr. A. E. Ewing had used cycloplegics early in his practice; it appealed to him as being an ideal method, but he

soon found that it got him into a great deal of trouble. His patients were always returning with the complaint that their glasses did not fit, that they could not see through them, etc. He then took up the idea that the accommodation had a natural resting point which could best be determined by means of trial lenses, and the skill of the physician consisted in finding this point of balance. With this determined, the patient would be comfortable. He adopted the method of putting on a glass somewhat too strong, or too convex in hypermetropic cases, and too weak, or less concave that necessary, in myopia and permitting this to be worn for a few minutes until the accommodation became quiet, then adding weak, concave lenses until what seemed to be an acceptable equilibrium was established with vision as nearly normal as possible. He always had his patients report to him in the course of a few weeks and usually found the correction to be satisfactory.

Dr. F. L. Henderson said there were two points in refractive work that must be kept in mind; first, to determine the nature and the amount of the error, and then to prescribe the glasses that best overcame the symptoms caused by that error. It had always seemed to him that the medical profession took itself too seriously, individually and collectively. They were too much inclined to believe that if a thing was not done in their own way, it was done wrong. If a physician found the glass that relieved the symptoms it made no difference how he arrived at his conclusions. It seemed to him that it was unscientific always to use a cycloplegic, and that it was equally as unscientific never to use a cycloplegic. In his own work he endeavored to coax out as much relaxation of the ciliary muscles as possible. There being no contra-indication, he used a cycloplegic and got the static refraction. Then, after the cycloplegic effect had worn off, with his knowledge of the static refraction, he believed that he was better able to prescribe the glasses needed than he would if he relied solely upon the manifest test. In the final test he applied a glass that he thought would relieve the patient of the symptoms complained of without following any set rule. The chief danger in the use of a cycloplegic was the possibility of the production of glaucoma. This was not a trifling thing, if it really did produce a glaucoma, but he had never yet seen glaucoma produced by a cycloplegic.

If, by the use of a cycloplegic, a latent glaucoma was unmasked, it was a question whether it was an injury or a benefit to the patient. Another objection that had been offered was, it might

dry up the milk of a nursing mother. He doubted whether so small an amount of the drug could produce such an effect. As to the use of a cycloplegic at the presbyopic age, he believed that it was of advantage in many cases of beginning presbyopia. He used homatropine in the majority of cases and atropine after homatropine in many cases, and, like Dr. Woodruff, had gotten pretty much the same static refraction. He had gotten very definite toxic symptoms from the use of scopolamine in two cases and had never used it since.

Dr. John Green, Jr., said the question of the employment or non-employment of cycloplegics for the determination of errors of refraction is an immensely important one, and deserves the unbiased attention of every ophthalmologist. On this question oculists may be divided into three classes; first, those who rarely, practically never, refract an eye without paralyzing the accommodation; second, those who rarely, practically never, use cycloplegics; third, that who use cycloplegics when it seems unlikely that a satisfactory measurement can be made without them.

It is certainly true that the non-users of cycloplegics are few and far between, at least in this country. Every American textbook insists, in no uncertain way, that complete paralysis of the accommodation is absolutely essential to a correct estimation of the refraction. While there are no statistics available, roughly estimated, 80 per cent of American ophthalmologists use cycloplegics as a routine, 15 per cent use the method more or less frequently and 5 per cent only are definitely opposed to the method. While it may be possible that the many are wrong and the few right, still the burden of proof unquestionably lies with the few.

The non-users of cycloplegic contend that the eye cannot be compared to a mechanical optical instrument, because it is a living thing, subject to the influences of the organism in which it is placed; that the moment we place an eye in an artificial condition (as with paralyzed accommodation) that moment do we, so to speak, isolate that eye from the rest of the organism, cutting off from it a thousand and one influences which may modify its refractive and accommodative function. They point to the fact that the widely dilated pupil permits the entrance of extra-pupillary rays through a portion of the cornea, whose refraction may be widely different from that of the central portion. They insist that a careful study of the refraction condition of the "natural" eye should be made the basis of a prescription for glasses. In a word,

they endeavor, by pains-taking subjective methods, in which astigmatic charts and the ophthalmometer play an important role, to arrive at a correction which at the moment is acceptable and comfortable to the patient. They do not expect that the correction given will be the final one, but insist on re-examination from time to time, with a view of unmasking more and more of the latent error. Thus, in the majority of cases, the patient, for the time being, is relieved of his symptoms, and should they recur, can again be made comfortable by a slight change in the spherical and cylindrical element.

It must be confessed that this method is trying to both the patience of the examiner and the examined. The laborious effort of the oculist to unmask, by the fogging method, as much of the latent error as possible, seems utterly futile to the latter-day skiascopist, who, with a few flashes of his mirror, determines with great accuracy, the static refraction of the eye. The conspicuous merit of the non-cycloplegic method lies in the opportunity it affords for a study of the function of the "natural" eye under the influence of the vital activities of the individual. What is one man's meat is another man's poison, and it by no means follows that the same glass will be accepted by two individuals of equal age whose static refraction and muscular balance are identical.

As complete a knowledge as possible of the dynamic refraction is, in Dr. Green's estimation, a *sine qua non* of correct refraction. It has been his impression that those who use cycloplegics habitually do not study the function of the "natural" eye, and pay little or no attention to the influences of the organism. The routine practice of deducting a certain amount from the static refraction as the basis for a prescription of glasses is especially to be deplored. Such a method leads frequently to serious error. Personally, he is a partisan neither of the non-cycloplegic nor of the cycloplegic school, but occupies a middle ground. He believes we should begin the study of every refraction case by carefully estimating the dynamic refraction, calling to our aid the help of ophthalmometer and astigmatic charts. With the correction thus found, the accommodative capacity is tested by a prolonged reading test. If the slightest uncertainty exists that this correction will fail to relieve the symptoms, he at once orders a cycloplegic and re-examines by skiascopy and the trail case. Finally a post-cycloplegic test is made. He is then in possession

of three sets of measurements, on the basis of which the prescription is made up. Certain it is that there are very many cases in which a knowledge of the static refraction is absolutely indispensable, and the oculist who fails to acquire this knowledge need not be surprised if his results are mediocre. He who declines to determine the refraction of a cross-eyed child, for instance, with the aid of complete cycloplegia and objective and subjective methods, cannot be deemed a safe guide in the management of these cases.

Dr. Green sums up: (1) Estimate the dynamic refraction with painstaking care and test the ability of the patient to use this correction for far and near; (2) if any doubt, estimate the static refraction under cycloplegia; (3) make a post-cycloplegic test. With the knowledge thus acquired the oculist will be in a position to prescribe glasses intelligently.

Dr. Llewellyn Williamson believed that in the great majority of cases, better and quicker results could be obtained by the use of a cycloplegic, but that its use should not preclude efforts to obtain all information possible about the eye in its natural state.

In illiterates, very young children, and especially in strabismus cases, where the refraction must be obtained by retinoscopy, he believed a cycloplegic to be a necessity, for, while retinoscopy could be practiced without a cycloplegic, the results were not so satisfactory.

Dr. J. E. Jennings, when he commenced refractive work, had been taught by Dr. Jackson of Denver to determine the complete amount of error under a cycloplegic, and then giving as nearly as possible a complete correction. In his cases he used one grain of homatropine to thirty drops of water, putting in 4 or 5 drops of the solution. Before he used the cycloplegic he found, approximately, what glass the vision seemed comfortable with. He had never been able accurately, to ascertain the amount of astigmatism with a cycloplegic. He knew there were men who claimed to be able to do this without the ophthalmoscope, but he had never seen them.

Mr. Gunn of London, for example, than whom there is no more able ophthalmoscopist, and who prided himself on his ability to refract with the ophthalmoscope, had during his (Dr. Jennings' service at Morfields) been found in error in many cases.

A New Treatment for Corneal Ulcers.

By. Dr. E. H. Higbee. For the past year and a half Dr.

Hughes has been using Lysol in serpigenous and rodent ulcers of the cornea and has found it is far superior to anything he has used heretofore. He has used it in full strength but finds that a 5 per cent and 10 per cent solution is the best, as the application can be made every day.

It has the properties of penetrating well into the tissues without destroying them, and its antiseptic properties are superior to those of carbolic acid. He always cocainizes the eye, then applies the solution only in the ulcer by means of an applicator wrapped in cotton.

In a series of cases, five of which he reports, he has yet to see any bad results, although in some of them he used it in full strength. A drop of pure lysol having been put in a new-born baby's eyes by mistake at one of our hospitals, with no bad effects following, leads him to suggest the following substitute for Crede's method.

Put a few drops of a 2 per cent solution in each eye without cocainizing, then bathe the entire head and face with a 5 per cent solution. The saponifying action will loosen all the debris; wash this application off with pure warm water and bathe the head and face a second time, then simply dry with gauze.

This method has the advantage of cleansing all parts about the head and face, leaving them aseptic, and is quite as effective as the nitrate of silver.

Discussion—Dr. Adolf Alt did not understand why there should be such a great difference in the treatment of ulcers with lysol, and in the treatment of ulcers with carbolic acid. He had used lysol in a large number of corneal ulcers and he had found that in some it gave satisfaction and in others the results were not so agreeable.

The doctor had spoken of the caustic properties of carbolic acid. Dr. Alt had never seen any lasting bad results from a corneal burn produced by carbolic acid. About twenty years ago he had under treatment a boy with an infected wound of the eye from a blow with a whip that had been dragged in cow manure. He had used yellow oxide of mercury, heat, atropine, etc., but without any improvement. Finally his druggist had suggested to him that he try an ointment with a new "bland" vehicle and he applied some of this ointment. In a moment the boy's eye was white, and he screamed aloud with pain. Dr. Alt thought it had put the boy's eye

out, but the next day it was much better. It developed that this ointment contained a large percentage of carbolic acid.

Dr. Alt asked Dr. Higbee if he knew how to explain the difference between the action of lysol and carbolic acid.

Dr. Higbee said that the saponifying effect of the linseed oil in the lysol protected the eye. He had at St. John's Hospital a young man who had emptied a bottle of carbolic acid over himself and though he had instantly closed his eyes when the acid struck him, yet enough had gotten into one eye so that when he came to the clinic he was so fearfully burned he would never be able to see again. Lysol did not seem to have so caustic an effect as carbolic acid. He had used lysol more than a year and considered it the nicest preparation he had ever used. He always used a local anesthetic first, for it is very painful without it.

Every oculist realizes the difficulty in stopping the process of some serpigenuous ulcers, and cannot help being grateful for a remedy that will successfully combat this condition.

LLEWELLYN WILLIAMSON, M. D.,

Section Editor.

COLORADO OPHTHALMOLOGICAL SOCIETY.

Joint Meeting with Colorado Oto-Laryngological Society, in Colorado Springs, January 16, 1909.

DR. ALEXANDER C. MAGRUDER, Presiding.

Diseases of the Accessory Sinuses in Relation to the Orbit.

Dr. Melville Black reported at length three cases in which he had found direct connection between ocular and accessory sinus diseases, with relief from sinus operations. He could recall no other cases occurring during the period of twenty years.

Drs. E. R. Neeper and A. R. Solenberger reported jointly the following cases: (1) Man of 28, with syphilitic infection eight years before, suffering from plastic iritis, which did not yield to active local and specific treatment until pus had been evacuated from the frontal and sphenoidal sinuses and the ethmoidal cells: (2) a woman, aged 53, suffering from weekly attacks of ocular pain, was relieved as to frequency and severity of exacerbations (probably glaucomatous, as other eye was lost one year before from glaucoma) after removal of the anterior two-thirds of a much hypertrophied middle turbinal and cauterization of an intumescent inferior turbinal; (3) a woman of 28, a great sufferer for many years from migraine, was greatly relieved by application of the galvano-cautery to spongy inferior and middle turbinates; (4) a

child who had suffered for five months with most painful double interstitial keratitis, was not relieved by local treatment until hypertrophied inferior turbinate, tonsils and adenoids had been removed (the subsequent development of an abscess of the caruncle being incidental); (5) a man of 55, with chronic conjunctivitis and entropion, was benefited by operative relief from occlusion of one nostril.

Drs. A. C. H. Friedmann and A. R. Solenberger jointly reported a case of chronic dacryo-cystitis which resisted the usual treatment. A markedly deflected septum was straightened, a middle turbinate removed, and ethmoidal cells curetted; after which the dacryo-cystitis was cured by a few treatments.

Dr. Robert Levy said that the close anatomical relation between the accessory sinuses and eye often explained obscure ocular lesions, and thought that we were coming to a better understanding of the pathological connection between the two. He pointed out that frank symptoms of ethmoidal and sphenoidal disease, as purulent nasal discharge, were often absent in eye diseases caused by affections of these cells; and would suspect the sphenoid in disturbances of the ocular muscles.

Dr. F. R. Spencer reported the relief of edema of the eyelids and orbital cellulitis by operation for purulent double frontal sinusitis.

Dr. Solenberger showed a sphenoid bone with very thin walls.

Dr. E. T. Boyd reported great proptosis, with immobility of the eye. An incision outside the external rectus and into the orbit revealed pus. Patient died the following day. The antrum and anterior cells of the ethmoid were found full of pus.

Dr. Orendorf reported a case of diplopia associated with pus in the posterior cells. He thought that many cases of diplopia, with remitting symptoms which later became permanent, were probably due to sphenoidal disease.

Dr. J. R. Robinson reported a typical case of orbital cellulitis; but on incision found no pus, but only bare bone. On removing the middle turbinal he obtained a free purulent discharge. The eye symptoms then subsided.

Dr. E. W. Stevens spoke of central scotoma as often due to sphenoiditis, and Dr. E. Jackson reported a case of this probable causation. Dr. Stevens had seen normal muscle balance with 10 mm. of proptosis.

Dr. J. A. Patterson stated that removal of the middle tur-

binated and examination of the ethmoidal cells often revealed a surprising amount of disease in this location, in cases of obscure orbital inflammation.

Dr. Jackson considered osteoma of the orbit a salient feature, and advised early removal of osteomata of considerable size.

Dr. C. E. Cooper thought that the frequently observed sinus affections would seem to cause more eye symptoms than they apparently do.

Dr. Levy exhibited X-ray photographic lantern slides illustrating affections of the accessory sinuses, and also pointed out clearly and comprehensively the connection between diseases of the sinuses and those of the orbit.

Resolutions were passed favoring a Colorado General Assembly bill calling for physical examinations, especially of the eyes, ears and air passages, and proper care of school children of the state.

COLORADO OPHTHALMOLOGICAL SOCIETY—SEPARATE MEETING.

DR. A. C. H. FRIEDMANN, Presiding.

Peculiarly Shaped Corneal Opacity.

Dr. E. R. Neepor presented S. T. C. (see page 100, OPHTHALMIC RECORD, February, 1905). The corneal opacity showed much less of the bubble effect and occupied less of the corneal area than it did December 17, 1904. That which remained was more evenly, but not so densely, opaque, and had taken on somewhat the form of a shoe, with upper and vamp each about 2 mm. wide and the toe pointing nasally and slightly downwards, the upper being about 3 mm. high and the vamp about 5 mm. long, while the superior nasal pupillary space, through which all vision was obtained, occupied the angle above the instep. A peculiar glistening surface somewhat resembling cholesterolin deposits was seen along the lace line extending to the toe of the opacity. V.= fingers 12 ft.

Perimacular Degenerative Changes.

A woman, aged 45, was first seen by Dr. Neepor July 28, 1908, complaining of asthenopia, headache, frequent dizzy spells, photophobia, and with a history of some soreness of the throat and mucous patches, but nothing visible in her throat at that time. There had been no specific treatment. She had three healthy children, the oldest being aged 15 years. One child dead and one mis-

carriage. Improved after a month at Excelsior Springs, fall of 1908. Read J. 1 with either eye from eight to twenty-two inches. R. V. = 20/30 — with + .75 D. Cyl. Ax. 75° = 20/20 +. L. V. = 20/20 + with + .75 D. Cyl. Ax. 115° = 20/20 +. The ophthalmoscope showed perimacular degenerative patches.

Discussion—Dr. Jackson thought this change was an old one, following previous inflammation, and that no further change would occur. Dr. Friedmann advised specific treatment.

Transparent Corneal Facet.

Dr. Neeper showed a creamery workman, aged 30, with sallow skin, but good health. First seen September 13, 1908, with a deep pneumococcic corneal ulcer about 2½ mm. in diameter, situated 1 mm. from the limbus at the junction of the nasal and inferior quadrants. The ulcer was so deep that every precaution had to be taken to avoid perforation. The epithelium lined the concavity left by the ulcer, after six days' treatment. There was none of the usual scar tissue. The pit, with its transparent walls, had become less deep; but after four months still showed a distinct depression.

Retinitis Pigmentosa.

J. G., aged 13, healthy, had first been seen by Dr. Neeper December 26, 1901, for asthenopia, headache and night-blindness, and a diagnosis of probable retinitis pigmentosa was made. The disk margins were obscure, while small but not characteristic degenerative patches were noted in the periphery of the left fundus. There was no consanguinity. Three tests of the refraction were made under hematropin. R. V. = 20/80—with correction = 20/60—. L. V. = 20/60 — with correction = 20/50. August 20, 1903: R. V. = 20/80 with correction = 20/40. L. V. = 20/40 with correction = 20/40 +. December 21, 1908: R. V. = 20/30 with correction = 20/30 +. L. V. = 20/50 with correction = 20/30 —. The degenerative changes had constantly increased, becoming characteristic throughout the periphery of both eyes. The fields had also contracted greatly during the past seven years. When presented the temporal fields remained nearly normal, but elsewhere they were, irregularly, from 20° to 30° for form, and small scotomata were present. Dr. Neeper also presented a woman, aged 55, with advanced retinitis pigmentosa. No consanguinity. Mother of four healthy children. Parents, four sisters and one brother all healthy. Another brother, eight years younger, had retinitis pig-

mentosa and, like herself, had never been strong and rugged like the other members of the family. With correction, R. V. = 20/80 + L. V. = 4/160. The fields were greatly contracted.

Pannus Involving Lower Half of Corneas.

Dr. J. A. Patterson showed a man, aged 48, who had lived in Arkansas until a month before, where he had much malaria. Three years before he began having sore eyes, which became so bad that he had to be led about. A year before he had obtained a yellow and a green ointment from an advertising quack in Ohio; after using it continually he eventually obtained much improvement. The lids showed no trachoma scars. There was, however, in both eyes a pannus covering the lower half of the cornea, with an addition of a central leucoma in the left eye.

In the right there was a bit of fleshy pannus, almost like a pterygium. After separating this from the globe, up to the limbus, by a subconjunctival injection of normal salt solution, it was dissected from the cornea by a sharp Graefe knife, and the denuded corneal area touched gently with a 25 per cent solution of nitric acid. Vision had been better since that time, as the reattachment of the vessels did not approach so far upon the cornea as before. Dionin was being used. Dr. Patterson considered this condition of trachomatous origin.

Discussion—Dr. Neepser thought this a case of trachoma. Dr. Black believed it chronic sclero-keratitis, and would do a peridectomy and curettement of the scleral margin. Dr. Strickler would use X-rays, and Dr. Bane mercuriol powder or ointment. Dr. Coover considered it trachoma, and noted granules below and a few at the upper fornix. He stated that he had often seen corneal lesions in follicular trachoma, and advised examination by turning the lids back two or three times with Darier's forceps, and inspection by aid of a binocular loupe.

Ciliary Wound with Scleral Counter-Puncture.

A woman, aged 40, presented by Dr. Patterson, was brought to his office on January 2, 1909, having been struck by a person with a hatpin held so that it protruded but a short distance from the hand. Both upper and lower lids were bruised and swollen. There was a slightly ragged wound at the outer margin of the cornea. A large amount of iris was protruding through the upper two-thirds of the rent, which was of a soft pink color. There was

a counter puncture in the sclera about 3 mm. from the limbus, and a trifle higher than the upper edge of the corneal wound. The margin of the corneal wound, for 2 mm., was hazy and wrinkled. The media were otherwise clear enough to show a slightly vertical oval nerve. No hemorrhage in the vitreous. On the afternoon of the same day, under cocain and holocain, the iris was drawn out gently and cut off. There remained a cut in the portion of the iris replaced. Atropine was applied and the patient put to bed.

The eye had been dressed daily. The anterior chamber was restored in twenty-four hours. No reaction having followed by the seventh day, permission was given to go home on the following day: but that night she was kept awake by pain in the eye and the ball was tender in the region of the counter puncture. This pain was entirely relieved by aspirin, which produced profuse sweating. The next day divided doses of calomel, followed by salts, were given. As lachrymation without photophobia continued, aspirin was resumed on January 13, with the effect of lessening the lachrymation.

Discussion—Drs. Black and Friedmann thought the prognosis good.

Dr. E. M. Marbourg presented a boy with vernal conjunctivitis of eight years' standing, affecting the ocular but not the palpebral conjunctiva, and causing slight clouding of the cornea. He had used 4 per cent ichthyol in boric acid solution.

Discussion—Three to four per cent salicylic acid ointment was suggested by Dr. Coover, who mentioned Theobald's use of 3 grains of sodium chloride in 1 ounce of 1:8000 solution of mercuric chloride.

Cases Reported.

Dr. Black reported central scotoma of one eye. He stopped the use of tobacco and gave strychnia. Vision returned in one week.

Dr. Neeper reported coffee amblyopia, with fainting, following excessive use of coffee in one not accustomed to drinking it. Some improvement had followed abandonment of coffee drinking. He also presented a case of amblyopia, probably toxic, with a patch of choroidal atrophy below the macula.

Dr. Bane reported retrobulbar optic neuritis, with central scotoma, in a man aged 42. The origin was not well defined. Treatment by the high frequency current was followed by marked improvement.

Dr. J. R. Robinson presented a case of choroiditis, and Dr. A. C. Magruder showed (1) anisocoria, with alternating squint, and (2) lateral and rotary nystagmus.

GEORGE F. LIBBY, *Secretary*.

SECTION ON OPHTHALMOLOGY, COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting January 21, 1909.

DR. HOWARD F. HANSELL, Chairman, Presiding.

Tubercle of the Choroid.

Dr. Wm. Campbell Posey exhibited a case of *Intra-ocular Neoplasm*, probably a solitary tubercle of the choroid, in a man aged twenty-nine years. The right eye had been inflamed for four weeks. Examination showed a small swelling in the sclera just anterior to the equator down and in, between the insertion of the rectus internus and rectus inferior muscles. There was slight ciliary injection, but the scleral vessels were markedly distended. The cornea was hazy, being the seat of a pronounced descemetitis. The vitreous was also hazy, but a large yellowish-white mass the size of half a small pea could be plainly seen with the ophthalmoscope, down and in, corresponding to the external swelling in the sclera. Tension was decidedly elevated and the pupil perceptibly larger than its fellow.

A careful physical examination was negative regarding tuberculosis elsewhere. Local treatment was administered, and 1/500 mg. of tuberculin administered hypodermically. A slight febrile reaction followed, but no local reaction was manifested. Dr. Posey considered the case to be an instance of solitary tubercle of the choroid and said that it was not unlike one reported by him in 1904 before the American Ophthalmological Society, which had been regarded as one of gumma of the choroid, but which upon microscopic examination was found to be solitary choroidal tubercle.

Palsy of Levator from Frontal Sinusitis.

Dr. Posey also exhibited a young colored girl who had developed almost complete palsy of the right levator palpebrarum as a consequence of a frontal sinusitis of the same side. The ptosis had followed severe neuralgic pain in the right supra-orbital and frontal region, and was coincident with the discharge of a muco-

purulent secretion from the right nostril. Examination revealed marked tenderness in the right supra-orbital region, with pain on tapping the forehead. The muscles of the eyeball were unaffected and the motions of the globe were unrestricted. Dr. George B. Wood reported pus exuding from the region of the frontal duct on the right side. Cleansing treatment was instituted, and was followed by a copious discharge of pus from the nose, and a rapid amelioration in the pain and in the degree of ptosis. Dr. Posey attributed the paretic condition of the muscle to a direct involvement of the muscle itself, as it lay in close apposition with the floor of the sinus, an involvement of the nerve supply of the muscle being excluded by the absence of involvement of the ethmoidal or sphenoidal cavities.

Glaucomatous Excavations Due to Syphilis of the Optic Nerves.

A third case of deep glaucomatous excavations in a colored woman, aged thirty-three years, was also exhibited by Dr. Posey. Vision had failed gradually in each eye since the birth of a child four years previously. No menstruation had occurred since that time, though the patient was otherwise apparently healthy. The anterior segments of the eye were free from glaucomatous symptoms and tension was but little elevated, but both excavations were very deep and embraced the entire head of both nerves. There was marked perivasculitis of the retinal vessels, and the retina in the neighborhood of the disks showed signs of degeneration. Corrected vision equalled 2/60 in each eye. The fields were much contracted, that of the right eye being reduced to a small temporal segment, while that of the left had suffered a large loss in its nasal half. Although a syphilitic history was unobtainable, Dr. Posey was inclined to view the case as one of syphilis of the optic nerves. He had seen several similar cases, usually be thought, in colored subjects, and with generally but one eye affected, in which the nerve was atrophic and a large deep excavation present, quite out of proportion to the degree of intra-ocular pressure present. He thought the excavations arose as a consequence of softening of the nerve and blocking up of the posterior lymph passages of the eye from uveitis, by syphilis or other toxic agents, by means of which the lamina cribrosa gave way under the intra-ocular tension. Such cases were not to be regarded as in any sense instances of essential glaucoma, but rather as examples of the effect of tension upon the

posterior segment of the eye as a consequence of the changes just referred to. He thought that treatment would be of no avail, as the anterior segments of the globe being apparently unaffected, any attempt to open the infiltration angle in the anterior chamber by either miotics or iridectomy would be futile.

Dr. Randall said that Dr. Posey's third case looked like one of very deep physiological cup, modified by optic nerve atrophy, possibly from hemorrhage rather than tension. Empirically he had tried dionin in such cases with distinct gain.

Dr. Ziegler said that the low tension suggested deep physiological cupping with atrophy of the nerve. If, however, the fields demonstrated glaucoma, he thought the posterior segment of the eye was chiefly involved and posterior sclerotomy was indicated.

Postneuritic Optic Atrophy in Syringomyelia.

Dr. Edward A. Shumway showed a case of *Syringomyelia, with Postneuritic Optic Atrophy, and Congenital Cataracts*. The patient was a young woman, aged twenty-six years, and the first symptoms of the disease had appeared eight years previously. The eyes became gradually blind three years ago. Ophthalmoscopic examination showed postneuritic optic atrophy; both eyes presented congenital posterior polar cataract and unusually high degree of atrophy of the iris in the left eye, from secondary glaucoma. Dr. Shumway spoke of the great rarity of postneuritic atrophy in syringomyelia, and said its most probable cause was internal hydrocephalus. Bulbar symptoms were present, as shown by hemiatrophy of the tongue, and its deviation toward the atrophic side, and these, with paresis of the external rectus muscle of the right eye, pointed to high extension of the cavity formation beyond the level of the medulla. There was also well-marked hemiatrophy of the face, which he considered the result of involvement of the fifth nerve, rather than as a lesion of the cervical sympathetic, which is usually given as the explanation. The lenticular opacities were to be regarded as a rare coincidence, and similar to those in a case reported by Schlesinger.

Dr. Weisenburg stated that his attention was first called to this case by the peculiar deformity of the hands. He had observed in many cases of syringomyelia that the contracture of the upper limbs was typically claw-like, and further examination demonstrated the usual sensory disturbances of syringomyelia. From the neurological standpoint the case is very interesting, because there

is, besides the usual motor and sensory symptoms in the upper and lower limbs and chest, involvement of a number of the cranial nerves with the peculiar ocular changes described by Dr. Shumway. In most cases of syringomyelia the cavity extends only as far as the upper portion of the spinal cord, but in this case it is evident that there is involvement also of the medulla and pons. The facial hemiatrophy is unusual and is probably due to disturbance of the fifth nerve and not to sympathetic changes, as is the opinion of many. To substantiate this view there are disturbances of sensation on the side of the hemiatrophy. This is the fourth case in which optic atrophy, secondary to choked disk, has been reported. The previous cases were those of Saxer, Bullard and Thomas and Weisenburg and Thorington. In two a necropsy was obtained and internal hydrocephalus found, and it is probable that the changes found in this patient are due to the same cause.

Choroidal Hemorrhage Following Operations on the Globe.

Dr. Wm. Campbell Posey read the histories of two cases, one an instance of massive explosive hemorrhage from the choroid, occurring in an Irishman, aged sixty-eight years, from whom a cataract had been removed from the other eye some years previously without complication. The hemorrhage followed immediately after the removal of the lens and without apparent cause, and continued for several days despite local and general remedial measures. The eye was finally lost from phthisis bulbi. The second case was an instance of transudation of blood under the choroid as a consequence of a sclerotomy which was performed on the eye of a middle-aged woman for the relief of secondary glaucoma, following the incarceration of the iris after a cataract extraction. As in the former case, a cataract had been successfully removed from the fellow eye some years previously.

Dr. Posey said that explosive choroidal hemorrhage is rare, Spaulding, in 1896, being able to collect but 100 cases from the entire literature up to that time. It was pointed out that while the hemorrhage may occur after vitreous prolapse or other mishaps at the time of the operation, it is just as common apparently during and after operations which have been uncomplicated. The general condition of the patient, too, has seemed to exercise no determining factor in its production, for while it is true that many who lose their eyes through this complication are atheromatous, they are no more so than the large majority of patients who successfully

undergo cataract operations, and many of those whose eyes are lost from choroidal hemorrhage, have had a cataract removed from the fellow eye without complication either before or after that which was attended by the fatal hemorrhage. The exciting cause of the hemorrhage undoubtedly is the lessening in the intra-ocular tension attending the incision into the globe, whatever the predisposing cause may be.

Pathological evidence formerly seemed to indicate that the hemorrhage emanated from the arteries of the choroid, as a consequence of sclerosis of their walls, which was part of a general vascular degeneration; but the microscopic study by Selina Bloom, in 1898, of four eyes which had been lost from choroidal hemorrhage, showed that the arteries of the choroid were healthy, but that the veins were diseased, being the seat of phlebitis and periphlebitis. The varicosities were limited to one eye, thus accounting for the usual occurrence of choroidal hemorrhage in but one eye, and showing them to be of local origin and apparently independent of any general vascular degeneration.

Dr. Posey thought that the hemorrhage in the second case could be explained either by an outpouring of blood under the choroid as soon as the increased tension in the glaucomatously inflamed eye was relieved by the escape of aqueous, or by the entrance of aqueous under the choroid, with perhaps some transudation of serum into the subchoroidal space, through tears in the ciliary body which were made by the knife during the incision. He referred at some length to Fuchs' observations on this type of accident in his classic monograph upon detachment of the choroid, both after the removal of cataract and iridectomy for glaucoma.

Dr. Zentmayer said that he had but a single experience with intraocular hemorrhage during cataract extraction, and that in the past week. He had had the senior interne at the Wills hospital operate upon the right eye of a man from whose left eye he had successfully removed a cataract thirteen months before. On account of the patient's behavior at that time he was etherized for the second operation. After the lens had been extracted, vitreous was found exuding from between the closed lids. This continued profuse and without further examination the eye was bandaged. That evening the dressing was found saturated with blood and this continued for five days. The eye is sightless and there is a prolapse of vitreous and iris into the wound, which is cicatrizing.

Dr. Risley said that he had been greatly interested in the case

referred to in Dr. Posey's paper, where the hemorrhage seemed to have been due to ruptured varicose veins. In the case he had himself reported and to which Dr. Posey had referred, he did not think that this could have been true. In the first place the blood was bright red, and the hemorrhage so profuse that it ran down over the face and saturated the bedding. As in the case of Dr. Posey's patient, she refused to remain in the hospital, and went to her own home, where she died from an apoplexy within the first week after leaving the hospital. She had general arteriosclerosis, the radials being atheromatous.

Dr. Harlan said that several cases of extensive operative hemorrhage had occurred in his practice. In one, a simple iridectomy for secondary glaucoma, profuse bleeding occurred as soon as the incision was made and forced out the lens, iris, and vitreous. The ball was enucleated and was found to contain practically nothing but a blood clot. In another, an iridectomy preliminary to extraction, the vitreous was infiltrated with blood and the eye destroyed. In a third case that he recalled, there was extensive hemorrhage in the vitreous after the cataract extraction, and the case was considered hopeless, but later the blood was absorbed and an excellent result was obtained.

Dr. de Schweinitz referred to the case which he had described before the section of expulsive choroidal hemorrhage after cataract extraction with loss of the eye, and to three other cases in which the termination was not so disastrous. The one, a dement, with chronic Bright's disease, had on the night following a simple extraction of cataract a hemorrhage sufficiently great to stain the bandages and spread apart the lips of the wound. The blood clot was removed and the wound closed with sutures. Gradually the eye cleared sufficiently to permit the patient to recognize hand movements. Whether further clearing would have taken place could not be stated, inasmuch as the patient died rather suddenly from uremic coma. Another case occurred in a very fat woman with advanced diabetes, the hemorrhage on this occasion being also great enough to stain the bandage and separate the wound. It slowly disappeared under treatment and the eye entirely recovered, although a thick capsule which was afterward submitted to De Wecker's operation vitiated for the time good vision. In a final case an hour after an ordinary combined extraction for cataract preceded by intense occipital headache and vomiting, there was a smart hemorrhage which separated the lips of the wound but then ceased, the

blood clot from the anterior chamber gradually disappeared, and the eye entirely recovered, with excellent vision.

Dr. de Schweinitz assumed that in the three cases in which the result was comparatively favorable, the bleeding had come from vessels far forward. In other words, the hemorrhage was not an expulsive one, and therefore not to be classified with the first of his cases, which was in all particulars analogous to the one reported by Dr. Posey.

Dr. Posey said in closing that the cases showed the importance of examining the eye grounds carefully for vascular lesions, before the lens became so opaque that the examination was impossible.

Unilateral Exophthalmos, with Exhibition of the Patient.

Dr. G. E. de Schweinitz demonstrated a woman, aged sixty-three years, without any facts in her family or personal history of importance, who began to have right-sided exophthalmos shortly after a blow on the head, the exophthalmos having slowly developed. During this period, according to the account of her attending oculist, there was never any bruit, pulsation, or enlargement of the orbital veins, but the vision of the eye was gradually lost, owing to progressive atrophy of the optic nerve without preceding neuritis. She had had for a number of years attacks of so-called fainting spells, during which she remained unconscious for fifteen to twenty minutes, and in two of these spells, just prior to her examination by Dr. de Schweinitz, according to the hospital notes, there were severe convulsions, generalized on one occasion and confined to the right side on the other. There was no history of diplopia and not the slightest failure in rotation of the eyeball in either direction, which was proptosed straight forward. Neither was there any inflammatory signs in the orbit nor loss of sensation in the cornea. The eyeball could not, however, be reduced entirely by pressure, as the posterior portion of the orbit appeared to be resisting. The exophthalmos was not intermittent, and X-ray examination and examination of the sinuses failed to show the presence of any growth or exostoses or distention.

Dr. de Schweinitz discussed the various possibilities in the case, and excluded pulsating exophthalmos, accessory sinus disease or growth, and unilateral intermittent exophthalmos. He considered it doubtful that there was a growth in the orbit, as all examinations except the one referred to of inability to show the growth, the exophthalmos by backward pressure, failed to show the growth, if it was present, or any inflammatory material or periosteal thick-

In closing the discussion, Dr. de Schweinitz said that the explanations of Drs. Ziegler and Harlan should receive full consideration, although it was difficult to understand how the earlier examinations of his patient could have escaped detecting sinus disease. Apparently, with the exception of the inability to reduce the exophthalmos by backward pressure, all examinations had failed to show growth, inflammatory deposit, or thickening, in the posterior portion of the orbit, but naturally they did not exclude entirely the presence of such conditions. The chief reason why he had suggested the exophthalmos as a possible sign of disease of the ventricle, tumor or otherwise, resided in the fact that the patient's clinical history gave evidence of intracranial disease, in the presence of attacks of unconsciousness, convulsions, as well as at one period in her life of headache and vertigo, although these last-named symptoms were not now present.

Hole at the Macula.

Dr. Zentmayer reported *two cases of hole in the macula*. They represent two types of cases: The first of traumatic origin; the second of vascular origin. The first case is on record as part of a previous discussion of this subject. The second case was seen at Wills Hospital, in a colored woman aged about thirty-five years. In the left eye the macular branch of the superior temporal artery was sclerosed, and just above the fovea it was entirely obscured by a glistening white, fluffy, round mass, probably connective tissue. Beyond this the vessel turned abruptly downward to the temporal side of the macula. The foveal region presented a perfectly round, sharply circumscribed, reddish-brown area, with a diameter about one-half that of the disk, with faintly pigmented edges and with four yellowish dots on its surface. The surrounding retina was hazy and showed numerous shifting reflexes. To the outer side of the fovea these were arranged in parallel lines, with a few scattered yellowish dots.

The probable explanation of these changes is that there has been an obstruction of the macular branch, with malnutrition and final atrophy of the retina, or there may have been an actual edema with rupture of the retina, although when the macula lesion is associated with vascular disease Dr. Zentmayer was inclined to believe with Kussel that "too much stress has been laid on the effect of edema and not enough upon vascular changes with resulting malnutrition and eventually atrophy."

ening. He thought it possible that the case might belong to those rare cases which had been reported, for example, by Uthoff and others, in which unilateral exophthalmos with optic nerve change had been caused by disease or tumor of the ventricles.

Dr. Weisenburg said that the case of Dr. de Schweinitz was first admitted to his service with a history of unconsciousness and Jacksonian convulsions, limited to the right side. The case was regarded as uremic, and in a number of days the mental and general symptoms cleared up and the present condition described by Dr. de Schweinitz was the only remaining one.

There is no indication of any intracranial lesion. No ocular palsies or anything which would lead to a diagnosis of a tumor either back of the eyeball or in any portion of the brain to account for the unilateral exophthalmos. In a recent paper of Dr. Rosenblatt (*Deut. Zeitschr. f. Nervenheilk.*, 1906) there were reported nineteen cases of tumor of the brain with exophthalmos. In six the growth was limited to the frontal lobes. In a number to the third and lateral ventricles and other portions of the brain. Dr. Weisenburg recently has had three cases. In one there was marked bilateral exophthalmos and a most curious symptom in which the axis of the eyeballs was directed downward with paralysis of upward associated ocular movement. Necropsy demonstrated a tumor in the lateral ventricle. In the second case there was a tumor in the third ventricle causing pressure upon the optic chiasm, and in the third a tumor of the third ventricle alone. These cases are interesting because it is the belief of Uthoff that tumors of the ventricle often cause exophthalmos. The explanation, however, is not very clear. It is interesting, however, to consider that there was described many years ago a center in the optic thalamus, irritation of which caused a protrusion of the eyeballs. Whether it is because of this that tumors of the ventricle cause exophthalmos it is difficult to conclude; but it is more difficult still to explain the cause of exophthalmos in tumors in the frontal lobe.

Dr. Harlan thought that as the proptosis was so absolutely resisting it seemed hardly possible that it could depend upon a vascular lesion. There must be something solid behind the ball.

Dr. Ziegler recalled a case that resembled this one which had followed on ethmoiditis with cellulitis, in which the dense deposit did not undergo resolution. He also thought an orbital hemorrhage with organization of the clot might have caused this condition. The nervous symptoms could be otherwise explained.

Dr. de Schweinitz referred to several cases which he had already reported and to others which he had not yet recorded. He was particularly interested in those which on two occasions he had seen fellow iritis, the macular lesion being ophthalmoscopically in all particulars exactly like that which is seen after trauma. He described another case which occurred in a woman who was subject to arteriosclerosis and myocarditis, and to still another case, bilateral, in a young hard-working student with high error of refraction and with no history of trauma or disease. In two of his traumatic cases, in addition to the ordinary hole in the macula, there was rupture of the choroid. In both of these cases the injury had been due to the blow of a ball upon the eye.

Choroiditis from Antral Infection.

Dr. S. Lewis Ziegler exhibited a patient, aged thirty years, whose fundus showed a few isolated areas of choroiditis, pigmented deposits, slight pallor of disk, and a web-like vitreous haze. Vision was reduced to 20/70, with marked contraction of fields and central scotomata. He had enormous puffing of the septum and turbinates, causing mouth breathing at night. There was a glairy mucopus escaping from the antrum, which contained pneumococci and staphylococci. When the nose was obstructed or bowels constipated the vision would suddenly drop, but quickly recovered. Has had headache for several years, and neuralgic attacks for two years. Had optic abscess two months ago.

This physician reported no improvement after five years of alterative treatment. The presence of mucopus, head pains and vacillating vision suggested possible intermitten nasal infection, dependent upon the degree of auto-intoxication and suboxidation present. Cauterization of the right turbinate and septal puff one month ago improved the breathing and antral drainage. Distant vision O. D. has recovered from 20/70 to 20/30, and the reading vision from J. 10 to J. 6, while the field has widened on the temporal side. The left nostril has not been treated and O. S. shows no sign of improvement. The lesion probably originated in minute foci of pneumococcic infection arising in a semi-occluded antrum and accompanied by obstruction to free breathing.

EDWARD A. SHUMWAY, M. D.,
Clerk.

REGULAR MEETING OF THE MILWAUKEE OTOPHTHALMIC CLUB, HELD JANUARY 5, 1909.

Dr. Jas. A. Bach in the chair, the president, Dr. H. B. Hitz, being absent.

Dr. Nelson M. Black presented case of cholestrine crystals in vitreous, with calcareous infiltration of cornea, in male, aet 75. Past history: Chronic rheumatism, no history of syphilis or diabetes or traumatism to eye; arteriosclerosis, no cardiac murmurs, some irregularity of heart action at times and blood pressure high.

Vision failing for several years, marked change noticed in last few months. Vision about same in both eyes = 6/LX. Two calcareous foci at inner margin of cornea and a superficial irregular crescent shaped calcareous infiltration of lower half cornea of left eye, dipping sufficiently to miss pupillary area.

Fundus examination under euphthalmin mydriasis shows beginning cortical cataract right eye, striae not encroaching upon pupillary area. Vitreous, especially to temporal side, full of cholesterine crystals, seemingly held in an exudate of extremely delicate and transparent texture, interfering but little with view of fundus best seen with + 7.00 D. lens, but few cholesterine crystals outside of those held in so-called exudate, none of the characteristic "showers" seen as the eye is moved. Arteries show the cork-screw terminals, the veins, the flattening where crossed by arteries, characteristic of arterio-sclerosis. Left eye shows a few cholesterine crystals toward the temporal periphery, held in an exudate similar to right eye, evidences of arterio-sclerosis less manifest. Urinary examination—urine cloudy and high color; reaction acid; sp. gr. 1025; albumen absent; sugar absent; microscopic = cholesterine crystals, amorphous urates and bladder epithelium.

Dr. G. E. Seaman reported case of cholesterine crystals in vitreous in man whose eyes later showed complete optic nerve atrophy. The patient later developing multiple sclerosis and dying.

Dr. E. D. Regan presented case of punctate keratitis and iritis of both eyes, with synechia down and out, left eye, in a girl age 8 years. First seen about 1 year ago; eyes now about in same condition as when first seen, having cleared up during summer, both cornea being perfectly clear. Presents case for suggestions as to treatment as usual treatment seems to bring about no improvement. No history of tuberculosis or lues; several other children in family all healthy, no nasal trouble, has enlarged cervical glands, poor teeth. In a condition of malnutrition, and is usually constipated. No temperature. Treatment: Used hot applications

atropin, subconjunctival injections of salt solution, mercurial injections for eight days followed by iodides and alternated with cod liver oil.

Dr. Chas. Zimmermann suggests syr. iodides of iron internally and dionin locally.

Dr. S. G. Higgins suggests the treatment used by Dr. Casey A. Wood of subconjunctival injections of a weak solution of iodine in potassium iodide.

Dr. Seaman thinks the condition is parenchymatous keratitis and suggests dionin locally.

Dr. Black suggested urinary examination, correction of constipation, examination of tonsils to see if they are cause of enlargement of cervical glands and if so their removal, also use of dionin in conjunction with other treatment locally.

Dr. J. A. Bach suggests a tuberculin test, and on account of low vitality, out of door treatment and building up of system with tonics and good food.

Dr. Chas. Zimmerman presented case with following history: Boy, age 15 years, delicate child, with some spinal trouble, nature not known. Asymmetrical development of body, left arm and leg longer than right, low vitality, swollen cervical glands right. One year ago going to school, sight failing, which lenses did not improve.

✓ = fing. 1 foot. Right, vitreous and lenticular opacities, con-
 ✓ = fing. 6 feet. tracted visual field, left retinal detachment and vitreous opacities. Boy taken from school; diagnosis of tuberculosis, given K. I. and Hg. Vision improved to fingers at 15 feet; occasionally 20/200. Last spring cataract suddenly developed in right eye. A decision last July showed the lens to be a hard solid mass and little impression was made; decision was repeated, lens was membranous, but succeeded in getting a tunnel through. Visual result is very poor; visual field is better; let eye is about same; retinal detachment down and out; does not show white, but red, with vessel ramifying over it.

Dr. Seaman and Dr. E. H. Neyman think condition is result of malnutrition.

Dr. J. S. Barnes suggests examination of urine.

Dr. Zimmerman says urine negative. Thinks retinal detachment is due to exudate, cataract formation due to malnutrition and that tuberculosis was the origin. Has suggested that boy now go to school and attend the department set aside for pupils with poor vision.

Dr. Bach suggests that the boy be sent to the State Institution for the Blind at Janesville, as there is better provision for teaching some means of self support.

Dr. J. A. Bach exhibited specimen of intraocular tumor, with report of case. Mrs. A. C., age 77. First seen May 19, 1908. With the exception of some trouble with left eye, recently, has always been in robust health, though of delicate type in physical stature, weighing 110 pounds. Has had small family, is in poor circumstances, husband living.

On examination of left eye a condition was found that was taken to be a chronic, mild iritis, with posterior synechia, which atropine would not overcome. Eye was not painful and she complained more of the loss of her vision than the pain or discomfort. A very slight ciliary injection was present. After trying for a few days to break the synechiae by atropine, dionin and hot applications, but failing, concluded to make an iridectomy. The vision at this time was counting fingers at 6 feet, owing to exudate in the pupillary space and contraction of the pupil. On May 30, 1908, iridectomy upwards. This relieved the condition quite satisfactorily and vision improved so that patient could again read coarse print. The result was considered satisfactory. November 10, 1908, patient called, as the vision had again become diminished. At this time a dark pigmented spot overlying the ciliary body above and back from sclero-corneal margin about $\frac{1}{8}$ inch was noticed. This spot was clearly subconjunctival and did not move with the conjunctiva overlying it. A proliferative melano-neoplasm of the ciliary body was suspected. By December 2, 1908, the vision was light perceptions only, and at this time a diagnosis was made of melano-sarcoma of the ciliary body and removal of the eye was urged, to which patient consented, and the operation was done next day. December 3, 1908, Dr. S. G. Higgins confirmed the diagnosis by transillumination.

Dr. Zimmerman asked Dr. Bach's experience as to the length of time that usually elapsed before metastasis occurred.

Dr. Bach replied he had never seen metastasis to other parts of the body.

Dr. Seaman reported case of melanotic sarcoma of globe, which had been enucleated by another man, in which he had exenterated the orbit for recurrence in stump. This was followed later by metastasis to liver, and death in ten weeks.

Dr. Zimmerman reported a similar experience.

Dr. Samuel G. Higgins read a paper on the "Ophthalmic Tu-

berculin Test." His contention was that its use is an aid to the diagnosis of early tubercular lesions, especially of the respiratory tract and of most value to the internist. Diseased eyes or eyes with a history of having been at some time inflamed excluded the ophthalmic tuberculin test as an aid to the diagnosis of ocular lesions.

His experience with the test upon twenty selected cases at the Milwaukee County Hospital conformed to the report of the majority of observers. The test was made in two non-tubercular control cases, one of which gave no suggestion of a reaction; the other had a chronic catarrhal conjunctivitis, which was exaggerated; this subsided within 36 hours. In six incipient pulmonary tubercular cases positive reactions were observed. The cases of active tubercular processes which were progressing favorably gave the most pronounced reactions. One asthenic case where diagnosis was questioned responded with a doubtful reaction; an autopsy one week later presented diffuse miliary tuberculosis.

In general medical literature one finds flattering reports, while in ophthalmic literature cases are reported with harmful effects to the eyes. The resultant ocular inflammations were mostly a conjunctivitis or keratitis, sometimes with ulceration. Choroiditis has also been recorded. Experiences are most variable: some writers have used the test for diagnosing tubercular eye lesions with no harmful effects, while others have met with persistent inflammation in eyes which previously were apparently healthy.

NELSON M. BLACK, Secretary.

WILLS HOSPITAL OPHTHALMIC SOCIETY OF PHILADELPHIA.

Meeting Tuesday, January 5, 1909.

WILLIAM CAMPBELL POSEY, M. D., Chairman.

Kerato-Iritis With Desceminitis.

Dr. Posey exhibited a case of kerato-iritis with desceminitis, and with blood straining of the cornea, in an adult woman. The eye had been inflamed for several weeks, the etiological factor apparently being a general cold. The blood staining occurred below in the substantia propia of the cornea, and was apparently occasioned by the saturation of the corneal lymph spaces by blood serum. There were no blood-vessels in the cornea and the membrane itself was clear, save for the appearance of numerous dots, which were either on the posterior surface of the cornea, or in its deeper layers. The staining disappeared over night upon two

occasions, but had reappeared with a fresh attack of cold. The patient had received soda salicylates, in addition to the usual local treatment, and the eye was apparently making a good recovery.

Trachoma.

Dr. Posey also showed a case of vesicular keratitis which was due apparently to metastatic gonorrhea. The patient, a male adult, had contracted a general urethritis for the third time six weeks previous to his coming to the hospital. The ocular inflammation occurring after the fourth week. There was no rheumatism. When first seen, the cornea contained several punctate areas of superficial opacity above and below, while almost a third of the epithelium of the central part of the cornea was slightly raised. Dr. Goldberg found copious gonococci in four separate smears taken from the corneal surface.

Atropine and iodoform salve were used locally, and in addition to the proper treatment to the urethra, hypodermic injections of an anti-gonorrheal serum were being made.

Dr. Posey also exhibited a young Hebrew woman with trachoma. She was of excellent circumstances and of apparently cleanly habits, and lived in an airy house. The disease had probably been communicated to her in a ladies' tailoring establishment, where she worked. The case was shown to illustrate that trachoma does originate in this city, even under comparatively favorable circumstances, and Dr. Posey thought that it accentuated the need of better caring for, and the guarding against the spread of this dangerous disease.

Posterior Polar Cataract.

Dr. Samuel D. Risley presented for study a case of posterior polar cataract, said to be congenital, in a young man aged 22 years. Dr. Ziegler had seen the patient ten years before at the St. Joseph's Hospital, since which time there has been no notable change in the opacity. Through the dilated pupils in each eye, with oblique illumination, could be plainly seen a cap-shaped gray-white disc, apparently 4 mm. in diameter and nearly circular, with fine projecting radii from its border. The opacities were sufficiently dense to appear quite black by transmitted light. In strong day light the pupils contracted to the diameter of the polar disc. The light was therefore excluded and the patient deprived of useful vision. Two months before he received an injury to the left cornea, which caused a disturbing nebula which invaded the pole. He had always regarded the left as his best eye and was therefore more

than ever helpless. He was sent for advice to Dr. Risley by Dr. Kistler, a former resident of the hospital.

Dr. Risley said he presented the case to his colleagues for their opinion as to the best operative procedure. As the fundus of each eye was apparently healthy, so far as any study of it could be made around the polar opacity, he was inclined to regard the case as one of persistent hyaloid artery. He suggested three modes of procedure: (1) Discission, for the absorption of the lens and any subsequent operative interference which might prove to be necessary in the development of the case; (2) iridectomy and the extraction of the lens in its capsule with a wire loop used as a vectis; and (3) the extraction, after iridectomy and capsulotomy, as in a ripe cataract, trusting for the absorption of any cortex remaining, and a subsequent operation to secure a pupil through the opaque posterior capsule; (4) the extraction of the lens by the method pursued by Major Smith. After discussing at some length the dangers presented by each method, he was disposed to favor the first and second suggestions, and he asked for an expression of opinion by the members of the society.

Dr. Radcliffe said that as little or no change had taken place in the opacity of the lenses during the past ten years, he would advise immediate operation. He thought that a preliminary iridectomy, followed later by extraction of the lens in its capsule with a loop, would give better results than needling and subsequent extraction.

Dr. S. Lewis Ziegler said that he had examined this man repeatedly in the past ten years and in that time he had seen no changes in the opacities. He had recommended discission and he would not change his view now. He believes it best to make a narrow iridectomy before practising the discission.

Dr. Schwenk said he would regard this as a case of retained remnants of a hyaloid artery. The case recalled to his mind a case of ripe cataract in one eye and an unusual opacity on the posterior pole of the other. At the extraction great changes were found on the posterior capsule and beneath it, and extending loosely from the pole was a whitish film, which was free from grit, but too amorphous to be studied.

Dr. Posey said that he was inclined to regard the case as of congenital origin; probably it is an instance of retained hyaloid artery. He possessed sections of several very similar eyes, which showed remnants of the artery on the posterior pole of the lens.

He thought the absence of any inflammatory sign in the cornea or elsewhere in this case, to be evidence of the non-inflammatory nature of the opacities.

Dr. Samuel D. Risley presented a girl, aged 14 years, with a peculiar form of interstitial keratitis in the left eye. Photophobia was unusually marked. There was a gray white opaque disc, horizontally ovoid 7 mm. long by 4 mm. wide, occupying the center of the cornea and deeply situated in its substance. The remainder of the cornea was opaque and of a bright pinkish red color. The color was due to vascularity, the vessels being located in the layers of the cornea. The surface was unbroken, and it was reflective. The general appearance and condition of the child suggested that the corneal disease might be of cretinoid origin as no history of a syphilitic or other constitutional taint could be elicited and the teeth were not characteristic. Adequate study of the general conditions was deferred, and no internal treatment was directed, but the child placed on atropia, dionin, with the application of hot water stupes locally. Under the quiet regime of the hospital ward and the local treatment, the rapid improvement in the demeanor and in the general health of the child, as well as of the corneal condition, was phenomenal. In a single week the gray infiltration of the cornea became nebulous and the vascularity had so far diminished that the iris could be made out between the individual blood vessel trunks, which could be seen distinctly with the unaided eye. Dr. Risley said that while the rapid improvement did not exclude this case from the group of patients in whom parenchymatous keratitis is due to impaired general nutrition, consequent upon abnormal function of the thyroid gland, he was nevertheless glad that thyroid extract had not been administered because the improvement in the general as well as in the local conditions would then have been ascribed to that treatment, instead of to the improved environment, better food, and better care. Under the changed regime, all the functions of the organism had returned to normal activity.

A Case Simulating Glioma of the Retina.

Dr. Zentmayer said that in the way of diagnosis perhaps no other class of cases presents such difficulties as do intraocular tumors and this is especially true of glioma of the retina which, occurring as it does in early childhood, we are usually deprived of the assistance to be obtained from the patient's own observations.

In the present case, advanced as it is, the parents seemed not

to have known of any trouble with the child's eye; and it was left to a schoolmate to make the discovery two days before the child was brought for examination.

The patient is a girl 8 year of age. Six weeks ago she had a mild attack of measles. Since infancy there has been otitis media on the left side and recently on the right side. The eye has never been inflamed. In the right eye the pupil is semi-dilated and from behind the transparent lens there is a suspicious reflex. Focal illumination shows this to be due to the detached retina which has been forced forward to a position just behind the lens. The detachment is in the form of four bladders or lobes of an equal size and separated by deep sulci. The retina is gray, thinned and mottled. Some of its vessels can be made out, but no newly formed vessels are visible. On sudden movements of the globe a tremor is at times observed in the mass. Transillumination gives a good reflex from the pupil accessible from all parts of the globe. Tension is a shade elevated.

In this case the diagnosis rests between glioma and an exudative process behind the retina. A pseudo-glioma, in the sense of a plastic uveitis, may be disregarded. What we here see is the interior surface of the retina. If the separation here is due to a glioma, it is either a neuroepithelioma diffusum, or a neuroepithelioma exophytum. The fact that the mass was seen to tremble and that the transillumination was normal would point to a serous effusion beneath the retina. Such a fluid might result from a serous choroiditis or to the presence of a cysticercus.

Dr. Risley suggested that the failure to secure a shadow by transillumination need not necessarily exclude the presence of a new growth. Possibly a tumor might be located back of the equator of the globe: in which case the illuminator could not be placed far enough back to reach it. Again, a tumor of the infiltration or unpigmented type might be present, which had produced detachment of the retina and the rays of light were not sufficiently interrupted to project a shadow. The increased tension suggested a new growth, he thought, as under other conditions detachment of the retina was usually associated with minus tension.

Dr. Schwenk exhibited several photographs of a patient once under Dr. Harlan's care, in whom the diagnosis of glioma was made, but the parents refused to allow enucleation. In a few months the process began to proliferate and increased with such

rapidity that before the child died the extruded mass was almost the size of the child's head.

Dr. Posey referred to the frequent difficulty in diagnosing cases of pseudo from true glioma of the retina. At least half a dozen cases had come under his notice in as many months, showing that the condition was not infrequent. There is often no preceding history to aid one in making a diagnosis of pseudo glioma, meningeal symptoms or other source of embolic infection of the eye being absent. He exhibited an eye enucleated but a few days before from a healthy child, in which the anterior chamber was shallow, the pupil small and filled in with a yellowish-white mass. Tension was plus. Though the eye was thought to be in a state of pseudo-glioma, enucleation was advised on account of the possibility of glioma being present.

Dr. Samuel D. Risley read an interesting history of the Wills Hospital, which he had prepared for the volume memorial of Founder's Week of the City of Philadelphia.

Cystic Formation in the Pars Ciliaris Retinal Following a Wound in the Ciliary Region.

Dr. Burton Chance reported from Dr. Schwenk's service a case of wound through the ciliary region caused by fragments of glass. Whilst suppuration did not occur, the lips of the wound failed to unite, and, after ten days symptoms of sympathetic irritation developed, so the eye was enucleated. At the operation a globular cyst extruded through the wound. This cyst when studied by Dr. Goldberg the pathologist, was found to have been developed from the pars ciliaris retinae; and in the region of the ciliary wound epithelioid and giant cells were found.

Dr. J. H. Dewey in discussing the probable early onset of symptoms of sympathetic irritation in Dr. Chance's case, said that McKenzie was, he believed, the first of the English authors to systematize sympathetic ophthalmia under the name of sympathetic iritis. He recognized the transference as taking place either through the (1) circulatory system, (2) the ciliary nerves, or (3) the optic nerve, and he gave his opinion in favor of the latter.

Ever since MacKenzie's time all theories have held one or others of these methods of transference in general, but have varied as to how it took place and as to what was transformed. Extension by contiguity, bacteria and toxins have all been advocated.

And while the pathology of sympathetic ophthalmia has been investigated in quite elaborate detail and has cleared away much

that was obscure or false, it has established little that is positive.

This much has been positively established that in the exciting eye and later in the sympathizing eye a peculiar growth of connective tissue is found.

Fuchs long ago stated that a panophthalmitis never gave rise to sympathetic ophthalmia and while this view has been slightly altered, it still remains a fact, that when pus is present sufficiently to prevent the formation of connective tissue sympathetic ophthalmia does not develop.

Wardrop tells how early in the last century the farriers noticed that a specific inflammation sometimes attacked horses, usually affecting first one eye and then the other, which sooner or later destroyed sight. And he reports that if the eye first affected suppurated and sinks into the socket, the disease does not attack the other eye. Therefore they advocate the practice of destroying the diseased eye by puncturing it with a rusty nail, in order to set up suppuration and thereby save the other eye.

Of course the process of sympathetic ophthalmia in the lower animals is denied by most authorities, probably on account of its not having been induced by experiments, and there are a few who think they have produced it by inoculation.

MacKenzie thought in his time that the only thing that hindered a rational explanation of the extension of the disease by the optic nerve was the doubt at that time that the optic nerve decussated.

While some claim that sympathetic irritation never passes over into sympathetic ophthalmia, others believe it may. And some of the early symptoms, especially the subjective ones, are so alike that it seems almost impossible to say which is present at first in any given case.

One clinical fact that lends some weight to the theory of transference reflexly from the ciliary nerves is this: Most attacks begin about five to eight weeks after the injury, and as this is the time when the wound has about cicatrized and become quiet, the patient is apt to incautiously use the eyes for near work. Whether this has anything to do with the exciting cause of a sympathetic ophthalmia or not, Dewey cannot say, but he is sure it is the correct explanation of the cause of sympathetic irritation.

Of the causes giving rise to sympathetic ophthalmia penetrating wounds of the eyeball, especially in the ciliary region, are by far the most common. But it has been said that anything that gives

rise to irido cyclitis in the one eye can cause a sympathetic irritation in the other, whether it be from an ectogenous infection or from an endogenous infection.

In more particular reference to the paper read by Dr. Chance, Dewey said that about three-fourths of the cysts reported as following penetrating wounds were believed to have been due to a proliferation of the epithelial cells transferred to the interim of the eye by the offending instruments. But in Chance's case the cyst had developed in spaces within the retinal sheet.

Dr. Posey said that the cyst in question was apparently an extrusion cyst, being composed of the prolapsed pars ciliaris retinae. Implantation cysts, such as occur after traumatism, when a cilium is carried into the anterior chamber, and arise as a consequence of proliferation of the epithelium, were more common.

Corneal Staphyloma.

A case of corneal staphyloma, by Norman Risley, M. D. This case seemed to be of sufficient interest to bring before the society because of the fortunate result obtained after surgical procedures, even though it had seemed that enucleation of the eyeball was the only course to pursue. S. W., was brought by her physician, Dr. S. Z. Shope, of Harrisburg, to this hospital August 22 last. She gave a history of an ophthalmia, of gonorrheal origin, one year before. Both eyes had been involved, with perforation of the left cornea. At the time of the first examination, the vision in the right eye was 1/60, in the left eye, 1/2/60. There was a large central corneal macula on the right eye. On the left there was a large staphyloma which was said to be steadily increasing in size, so as to prevent complete closure of the palpebral orifice. With daylight, it appeared to occupy the upper nasal quadrant of the cornea, extending from a point at the center of the pupillary area beyond the corneal margin into the sclera, including the ciliary region. There was a dark band along the upper margin which appeared to be the iris or choroid. With transmitted and oblique illumination it was found that what appeared to be the involvement of the sclera, was a bulging upward of the cornea, and the dark band was a strip of transparent cornea. The iris seemed to be intact. At first thought enucleation was suggested, which view was concurred in by Dr. Pontius, but it was decided to watch the case for a few days. Four days later excision of the staphyloma was advised with the understanding that if it should not succeed permission would be given for the enucleation of the globe. Ether was given and an elliptical portion was

excised from the upper margin of the staphyloma two-thirds of its extent. The cornea at this point was extremely thin, the iris was not adherent. Five silk sutures were inserted and the edges of the wound brought together, thus bringing the opaque portion upward, so that practically the lower two-thirds of the cornea over the pupil was transparent. A pressure bandage was then applied and kept on constantly except while the eye was being dressed. There was very little tendency to bulging of the wound at any time. The stitches were removed at the end of the eighth day. In two weeks the patient went home, where she continued the use of the bandage and other treatment under the direction of Dr. Shope, who has reported that the bandage was kept on constantly until the first week in December, and that there is now not only no tendency to recurrence of the staphyloma, but that there has been a gradual shrinkage of the ectasis until the highest point is only 1 mm. The vision is $1/40$ without correction. There is slight dropping of the eyelid, which completely hides the scar, so that it is invisible except when the upper lid is raised. At the time of the operation it was fully expected that the removal of the globe would be necessary.

Dr. Radcliffe spoke of the treatment of corneal staphyloma, saying that unfortunately it did not offer an attractive field for brilliant surgery, but that much could be done by conservative measures to give comfort to the patient, improve the appearance of the eye, and, in some cases, restore useful vision. He described the various operations, viz: Paracentesis, broad iridectomy, and slitting in the early stages. He especially advocated Dr. S. Lewis Ziegler's triangular operation in partial staphyloma. He referred to the operations of Critchett, Borelli, Knapp and Beer and De Wecker's for ablation. He preferred the latter method as the safest and most satisfactory. When there was thinning of the sclera, or a probable tendency to sympathetic disturbance, he strongly advised enucleation.

Dr. Posey referred to the necessity of conservatism in the surgery of even desperate cases of staphyloma, such as Dr. Risley had reported. He deemed the employment of the conjunctiva in covering up weak places in the cornea of great advantage.

Dr. S. Lewis Ziegler described an operation which he has frequently used in cases of staphyloma of the cornea. It is accomplished by means of a specially devised instrument with which triangular areas are punched out of the tissue; the edges of the gaps are then united with sutures.

BURTON CHANCE, *Secretary.*

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

A clinical meeting was held at the Medical Society's rooms on Thursday, February 11, 1909, Mr. E. Nettleship in the chair. Mr. Bishop Harman showed models, on an economical plan, for the diaphragm test, and a substitute for smoking for the use of cases of tobacco amblyopia who felt the loss of their tobacco. The latter consisted of quassia made up in the form of chewing gum, and the idea was suggested to him by the remark of a night watchman with tobacco amblyopia who had to sit by a fire all night and did not know how to employ his time if he did not smoke. Dr. A. Levy showed a case of obstruction of the cilio-retinal artery. The vessels were sclerosed, and that was the only evidence of arterial disease, the viscera being sound. Mr. Cunningham showed a case of aniridia and gave the family history of the condition. Mr. Nettleship brought three drawings illustrating hemorrhages, believed to be choroidal, following a blow on the eyebrow, also choroiditis behind the retinal veins. Mr. Hancock showed a case of pituitary neoplasm with ocular symptoms in a child. The physique of the child seemed to suggest it was an early case of acromegaly, and skiagrams showed an abnormal appearance in the pituitary region. Mr. Macnab called his attention to a paper on the subject by Uhthoff at the Heidelberg Congress. Dr. Mackenzie Davidson exhibited the skiagrams of the case, showing a small abnormal opacity in the region of the pituitary body, in front of the sella turcica. He said he had never seen an appearance of that nature before. Mr. Leslie Paton said he had seen a case of similar nature at intervals in the last six years. The boy developed intense optic atrophy in both eyes, evidently due to pressure on the chiasma, and the sequel was that he was now in an asylum. Mr. Macnab gave a synopsis of the paper by Uhthoff, to which allusion had been made. Mr. Fisher questioned whether the skiagram enabled one to say that the bony cavity containing the sella turcica was enlarged. Mr. E. W. Brewerton showed a case of cyst of the iris, which at first had the appearance of sarcoma. Mr. Rayner D. Batten showed two cases of hereditary retinitis. He believed it was a retinitis with secondary atrophy, rather than an actual atrophy.

THE OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

An ordinary meeting of the society was held in the Medical

Society's rooms, London, on Thursday, March 11th, Mr. W. H. H. Jessop occupying the chair.

Dr. G. Carpenter showed a post-mortem specimen illustrating oxycephaly, and Mr. Sydney Stephenson mentioned a similar case which he had had, commenting on the shallow orbit and the consequent ease of dislocation of the eyeball. Mr. J. Rowan showed some fine stereoscopic color photographs, by the Lumière process, of eye conditions. Mr. Edridge-Green exhibited a new form of lantern for the detection of defects of color vision. Mr. Parsons showed a case of unilateral optic neuritis with white spots in the retina, and it provoked a long discussion, in which the chairman, Mr. Nettleship, Dr. F. E. Patten and Mr. Bishop Harman took part. Mr. Jessop showed a case of keratitis punctata with a history of erythema nodosum. Mr. Mayou and Mr. L. Guthrie showed a case of optic atrophy (retro-bulbar) with cerebellar symptoms in a child. Mr. E. Treacher Collins read a paper on congenital anterior staphyloma. Mr. Collins described the case of a child born with an opaque, vascular, staphylomatous cornea, who never had any discharge from the eye. When 15 months old he performed a Mules' evisceration upon it, and subsequently made a pathological examination of the elliptical piece removed from the front of the eye. It was found that Descemet's membrane and the ligamentum pectinatum were absent, there was no stroma to the iris, and the lens was also malformed. Most cases of congenital anterior staphyloma have been attributed to inter-uterine ulceration. Mr. Collins thought that a case in which there was complete absence of Descemet's membrane and the ligamentum pectinatum could not be accounted for by ulceration, and must be attributed to some developmental defect. He suggested that there had been a failure in the differentiation of the mesoblast, which intrudes between the lens vesicle and the surface epiblast, into its several layers. Normally there developed from it the substantia propria of the cornea, Descemet's membrane, its lining endothelium, and the antero-fibrovascular sheath of the lens. From this latter the foetal lens largely received its nutrient supply and the stroma of the iris was to a great extent formed. A failure in the differentiation of the several structures, or atypical development of the intruding mesoblast, might, as in the case under consideration, lead to a vascularized, thickened, fibrous mass, in place of the substantia propria, an absence of Descemet's membrane, of the stroma of the iris, and a malformed lens. He concluded by referring to several other congenitally malformed eyes,

in which he had found defects in development of Descemet's membrane or the ligamentum pectinatum of a less extensive character. The paper was discussed by Mr. Parsons and Mr. G. Coats, who failed to agree with all that Mr. Collins had advanced. Mr. E. Nettleship contributed seven new pedigrees of hereditary cataract: (1) twenty-four cases of lamellar cataract in four generations; (2) and (3) coralliform cataract, one of them containing twenty cases, in four generations; (4) (5) (6) and (7) pedigrees of senile and presenile (or juvenile) cataract in from two to four generations, some of them illustrating "anticipation," i. e., the occurrence of disease at an earlier age in the younger generation. Two of the pedigrees showed the introduction of a second heritable disease from an outside non-cataractous stock, goitre in one instance, insanity in the other. Dr. F. W. Edridge-Green and Mr. C. Devereaux Marshall submitted a paper on so-called artificially produced temporary color blindness. They stated that Professor Burch, of Oxford, had read a paper before the Royal Society, which was published in the *Philosophical Transactions* in 1898, giving the results of his experiments, in which he split up direct solar light with a spectroscope, and then collected the rays of the individual colors with a convex lens and saturated his own eye with any desired color. He then examined a spectroscope illuminated with diffuse daylight, and stated his results. He found that he could produce temporary color blindness to any color in this way. His most important point was that by saturation with light at the "D" line, red and green blindness supervened, and these colors could not be perceived, and this he held to support the complex nature of yellow light, the Young-Helmholtz theory of color perception. Messrs. Edridge-Green and Marshall criticised his experiments. They thought that if direct sunlight were focussed in the retina, not only temporary, but probably permanent blindness might be produced, and anyhow the eye would be incapable, after such treatment, of making accurate observations on a feebly illuminated spectrum. They produced fatigue in their own eyes with a sodium light, and then found that yellow and orange became obliterated, and that red and green met in the spectrum, and that there was no diminution of those two colors. Other experiments were repeated, with different colors, and in most of them they disagreed with Professor Burch's results, which, they held, were due to faulty methods of conducting the experiments. These facts are, they contend, only explicable on the psychophysical theory of color vision (Edridge-Green's theory).

C. DEVEREAUX MARSHALL, F. R. C. S.

Notes and News

Personals and items of interest should be sent to Dr. Frank Brawley,
72 Madison Street, Chicago.)

Dr. E. V. I. Brown, of Chicago, has returned from Vienna.

Dr. A. C. Bartholomew, formerly of Logansport, has removed his office to South Bend, Ind.

Dr. Charles J. Kipp, of Newark, N. J., has resigned from the staff of the German Hospital, Newark.

Dr. Henry Gradle has been elected president of the Chicago Laryngological Society.

Dr. Nelson Covert, an ophthalmologist of Geneva, N. Y., is dead.

The directorship of the eye clinic in Cagliari, Sardinia, is to be given to Bietti.

Docent Dr. S. Eperon of Lausanne, Switzerland, has been made Professor Extraordinary of Ophthalmology.

Dr. S. Lewis Ziegler has recovered from a very severe attack of erysipelas and has gone to Europe to recuperate.

J. G. de Rock has recently received the appointment of House Surgeon of the Royal Eye Hospital, Southwark, S. E. Eng.

Dr. Chauvel, formerly associated with Galezowski of Paris, in the publication of the *Recueil d'Ophthalmologie*, is dead.

The new University Eye Clinic in Munich, was dedicated January 18, 1909. The address was given by Professor Dr. Eversbusch.

Professor Dr. William Uhthoff, of Breslau, Germany, has been recently appointed General-Oberarzt of the German army.

Henry Bausch of the well-known firm of Bausch & Lomb Optical Co., of Rochester, N. Y., died recently.

Dr. Thomas F. Staley of Bristol, Va., has been appointed oculist to the Virginia & Southwestern railway.

Dr. Frederick Bentley, Seattle, Wash., is touring in the Orient, where he will visit Honolulu, Japan, etc., returning by way of Europe.

The New York Eye and Ear Infirmary and the Home for the Destitute Blind have each received \$10,000 by the will of the late Emma D. Cummins.

At a recent meeting of the Board of Directors of the Chicago Eye, Ear, Nose and Throat College, Dr. Joseph C. Beck was elected to the Professorship of Otology, Rhinology and Laryngology.

Lieut.-Col. Herbert S. Birkett of Montreal, Canada, was recently made president of the Association of the Canadian Army Medical Corps.

THE OPHTHALMIC RECORD will pay fifty cents (50c) for the January, 1905, number. Address H. A. Fox, publisher.

The annual dinner of the Royal London Ophthalmic Hospital was held February 10 at the Trocadero restaurant, Sir Anderson Critchett presiding.

F. Monteith Ogilvie has been made consulting surgeon to the Oxford Eye Hospital, Oxford, England. P. E. H. Adams received the appointment as assistant surgeon.

A recent appointment to the staff of the Ulster Eye, Ear and Throat Hospital of Belfast, Ireland, is that of Henry Hanna, who has been made assistant surgeon.

Mr. N. B. Harmon of London, has been made permanent assistant medical officer of the Education Committee of the London County Council and will have charge of the ophthalmic clinic.

The officers of the Ophthalmic Section of the St. Louis Medical Society are as follows: Chairman, Dr. Adolf Alt;; vice-chair

man, Dr. Meyer Wiener; secretary, Dr. John Green; treasurer, Dr. William H. Leudde; editor, Dr. Lewellyn Williamson.

At the organization of the Section of Specialties of the Cincinnati Academy of Medicine March 1, Dr. D. T. Vail was elected chairman and Dr. Samuel Iglauer, secretary. The meetings occur in the Academy Hall the first Monday night of each month.

The Vienna Medical Faculty has under consideration to fill the position made vacant by the sudden death of Professor Schnabel, the names of Professor Dr. William Uhthoff, Breslau; Professor Dr. Karl Hess, Wurzburg, and Professor Dr. Friedrich Dimmer, Graz.

Dr. Frank Allport of Chicago, delivered an address entitled "A Plea for the Systematic Annual and Universal Examination of School Childrens' Eyes, Ears, Noses and Throats," before the Congress of the American School Hygiene Association, held in Chicago, February 22 to 25, 1909.

The Jackson County (Mo.) Medical Society has organized a special section of eye, ear, nose and throat. The first meeting was held in Kansas City, February 9, 1909. Dr. T. S. Blakesley is chairman and Dr. J. S. Weaver, secretary. A very good program was presented.

The Cross of the Legion of Honor has been conferred upon a young medical student in a Paris hospital, M. Louis Brazy, who lost his eye from an infection received during an operation upon a charity patient. It would probably have resulted seriously for the patient if the young assistant had left the operation to disinfect his eye and he therefore preferred to continue the operation and take his chance.

The Oxford Ophthalmological Congress meets this year on July 14, 15, 16, in Keble College, Oxford, England. Under the able direction of Mr. R. W. Doyne, reader in ophthalmology in Oxford University, this congress has passed the experimental stage and has taken its proper place as one of the most important of the annual congresses of ophthalmology. No small measure of its success is due, we feel sure, to the preponderance of clinical, pathological and operative demonstrations. Its scope is so eminently practical that its continued popularity is well assured.

On line 37 page 39 of the January record Dr. Henry Meunze is quoted as having said below "Bowman's membrane." It should read above "Bowman's membrane."

Atlas and Epitome of External Diseases of the Eye. Third Revised Edition. By Professor Dr. O. Haab, of Zurich. Edited, with additions, by George E. deSchweinitz, M. D., Professor of Ophthalmology, University of Pennsylvania. With 101 colored lithographic illustrations on 46 plates and 244 pages of text. Philadelphia and London: W. B. Saunders Company, 1909. Cloth, \$3.00 net.

Atlas and Epitome of Ophthalmoscopy and Ophthalmoscopic Diagnosis. Second Revised Edition. By Professor Dr. O. Haab, of Zurich. Edited, with addition, by George E. deSchweinitz, M. D., Professor of Ophthalmology, University of Pennsylvania. With 152 colored lithographic illustrations and 94 pages of text. Philadelphia and London: W. B. Saunders Company, 1909. \$3.00 net.

It would seem that conservative England has her unscrupulous optologists as well as our own unfortunate country. According to the Ophthalmoscope, a firm of opticians in Glasgow advertised to examine the eyes and furnish free glasses to all "respectable employees, householders, or members of families who require glasses," and all free of charge, upon a certain day in December last. A vast crowd gathered and police interference was necessary. A rival firm, called the American Optical Company, not to be outdone, advertised their ability to straighten cross-eyes without the knife, and to cure cataract, etc.

Scotland is also the field of operation of a new quack, a former coal miner, William Miller, who agrees to cure cataract, ulceration, dirt tumors, fire, and "that ungainly inflammation so often the residue of measles."

Incidentally, the Ophthalmoscope, to whom we are indebted for the above interesting matter, has taken on a new and attractive growth for 1909. It would possibly have been more considerate, however, for those who wish their bound volumes to be uniform in size, to have increased the number rather than the size of the pages.

A Practical Manual on Strabismus by Dr. René Onfray, Assistant Ophthalmologist to the Hôpitaux de Paris. Preface by Dr. Rochon DuVigneaud, ophthalmologist to L'Hopital Laënnec. Published by G. Steinheil, 2, Rue Casimir-Delavigne, 1909. Price, \$1.00. The volume contains 296 pages with 12 illustrations, and is published in the French language.

To Ophthalmologists:

As Chairman of the Committee on Liberty of the Board of Attending Surgeons of Wills Hospital, I shall be grateful if you will kindly donate to the library of the hospital autograph copies of any reprints, books, etc., upon ophthalmic subjects, which you have either written or edited: the same to be numbered, catalogued and placed in the library of the hospital, as it is desirous to have copies of all of the published work of the Ophthalmologists of America. Reprints and books should be addressed to Dr. Charles A. Oliver, Chairman of Library Committee, Wills Hospital, Race street, between Eighteenth and Nineteenth streets, Philadelphia, Pa.

Hemorrhage in the Eye in the New-Born.—In the *Beiträge zur Geburtshilfe und Gynaekologie, Leipsic*, Vol. XIII, No. 3, pp. 339-496, Stumpf and von Sicherer noted hemorrhage in the retina or optic nerve in 42 out of 200 children examined soon after birth. It seems evident that the stress of delivery is able to induce hemorrhage by the changes and congestion induced by the birth act. The trouble is generally the result of interference with the circulation, and he questions the after-fate of children with this hemorrhage in the eye, querying whether it might not lead later to the development of a glioma. The hemorrhage is probably the result of pressure on the head from the soft parts of the birth passage. It is particularly liable to occur in case of existing asphyxia or premature delivery, as in such cases the blood vessels are peculiarly fragile, not having reached their full development.

Tobacco Amblyopia in a Woman.—W. S. Franklin, M. D., in the *California State Journal of Medicine* for March, records the case of a Swedish woman, single, aged 52, with tobacco amblyopia, who had been in the habit of smoking from six to eight domestic cigars daily. He discusses the pathologic changes in the optic nerve due to tobacco, which are identical with those caused

by alcohol or by the mixed intoxication of alcohol and tobacco. No clinical differentiation is possible between them. In this case, however, Franklin believes the woman's denial of alcohol. He quotes Martin's opinion that in tobacco cases the pupil is contracted, and in alcohol cases dilated, but in the author's case the pupil was moderately dilated. The excess of cases in men is due, not to any predisposition, but to the greater numbers of tobacco and alcohol users among them. In women the amblyopia is generally of the mixed form, but Franklin considers his case as one of pure nicotine neuritis. All forms of tobacco use can induce the neuritis. He discusses the varieties of tobacco and their nicotin content. The diagnosis is made by the reduced vision, the paleness of the temporal quadrant of the disc, and the central scotomata. The latter are in the beginning only relative for colors, then for form, and vary toward all degrees of the absolute, depending on the stage of the neuritis. In a large number of cases the complete stopping of nicotin will effect a cure.

Syphilitic Rabbit Cornea as Antigen for Serum Diagnosis of Syphilis. (Cornea sifilitica del coniglio nella reazione del Wasserman.) F. Simonelli. *Gazzetta degli Ospedali e delle Cliniche*, Milan, February 14, Vol. XXX, No. 19, pp. 193-208. Inoculation of the cornea of rabbits with syphilitic material results in the production of a typical parenchymatous keratitis, and Simonelli states that the extract of the infected cornea has the same specific action as material from syphilitic fetuses in applying the Wasserman test. He cites a dozen clinical cases in which serodiagnosis with the extract of syphilitic rabbit corneas, fresh or desiccated, gave results identical in every respect with those obtained with antigens from ordinary sources. The desiccated extract has proved fully as effectual as the fresh in his experience, and he advocates the use of the rabbit cornea as a readily accessible and reliable means of obtaining the antigen for the test.

CHICAGO EYE CLINICS.

THE OPHTHALMIC RECORD.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A.M.	Richard S. Patillo (P.G.) J. F. Burkholder (E. E. N. T.)	G. W. Mahoney (Poli.) Geo. F. Suker (P.G.) (E. E. N. T.)	E. J. Brown (E. E. N. T.)	G. W. Mahoney (Poli.) Richard S. Patillo (P.G.) J. F. Burkholder (E. E. N. T.)	Richard S. Patillo (P.G.) Oliver Tydings (E. E. N. T.)	G. W. Mahoney (Poli.) E. J. Brown (E. E. N. T.)
10 A.M.	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	E. J. Brown (E. E. N. T.)	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)
11 A.M.	Brown Pusey, N.W.U. Every day, 10-12 A.M.					
1 P.M.	W. W. Woodruff (E. E. N. T.)	A. G. Wipern (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	A. G. Wipern (E. E. N. T.)	H. W. Woodruff (E. E. N. T.)	A. G. Wipern (E. E. N. T.)
2 P.M.	W. L. Brown (Inf.) E. J. Gardner (E. E. N. T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) D. A. Payne (Ills. Med.) N. E. Remmen (Inf.) F. A. Phillips (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) N. A. Young (Inf.) Francis Lane (Rush) J. B. Findlay (P. & S.) Oscar Dodd (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Thos. Faith (E. E. N. T.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) F. A. Phillips (Inf.) Wm. H. Wilder (Rush) N. A. Young (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) W. A. Fisher (E. E. N. T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) H. W. Woodruff (Inf.) N. A. Young (Inf.) E. J. Gardner (E. E. N. T.) Paul Guilford (St. Luke's) *Casey Wood (St. Luke's) *T. A. Woodruff (St. Luke's) J. B. Loring (Inf.) D. A. Payne (Ills. Med.) F. A. Phillips (Inf.) Wm. H. Wilder (Inf.) H. B. Williams (Inf.) Francis Lane (Rush) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) *Frank Allport (St. Luke's) *Frank Brawley (St. Luke's) Thos. Faith (E. E. N. T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) E. J. Gardner (E. E. N. T.) Paul Guilford (St. Luke's) *Casey Wood (St. Luke's) *T. A. Woodruff (St. Luke's) J. B. Loring (Inf.) D. A. Payne (Ills. Med.) F. A. Phillips (Inf.) Wm. H. Wilder (Inf.) H. B. Williams (Inf.) Francis Lane (Rush) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) H. W. Woodruff (Inf.) N. A. Young (Inf.) E. K. Loring (P. & S.) J. B. Findlay (P. & S.) Oscar Dodd (Inf.) Thos. Faith (E. E. N. T.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) E. K. Findlay (Inf.) W. A. Fisher (E. E. N. T.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) D. A. Payne (Ills. Med.) F. A. Phillips (Inf.) Wm. H. Wilder (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)
3 P.M.	W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)	H. H. Brown (Ills. Med.)	*J. E. Harper (P. & S.) W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)		W. Allen Barr (C.C.S.)	Geo. F. Suker (P.G.)
4 P.M.	W. F. Coleman (P.G.)	C. W. Hawley (P.G.)	G. F. Suker (P.G.)	C. W. Hawley (P.G.)	W. F. Coleman (P.G.) Brown Pusey (County)	

*Special operative eye clinics.

ABBREVIATIONS:

C. C. S.: Chicago Clinical School, 819 W. Harrison Street.	County: Cook County Hospital, W. Harrison and Honore Streets.	Poli.: Chicago Policlinic and Hospi- tal, 174 E. Chicago Avenue.	Rush: Rush Medical College, W. Harrison and Wood Streets.
E. E. N. T.: Chicago Eye, Ear, Nose and Throat College, Washington Franklin Streets. Clinics all day.	Ills. Med.: Illinois Medical College, 182 Washington Blvd.	P.G.: Post-Graduate Medical School of Chicago, 2400 Dearborn Street.	St. Luke's: St. Luke's Hospital, 1416 Indiana Avenue.
	Inf.: Illinois Charitable Eye and Ear Infirmary, Peoria and Adams Streets.	N. W. U.: Northwestern University, 2431 Dearborn Street.	

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

VOL. XVIII

CHICAGO, MAY, 1909

NO. 5, NEW SERIES

REPORT OF A CASE OF KERATITIS PROBABLY DUE TO METASTATIC GONORRHEA.*

DR. WM. CAMPBELL POSEY,
PHILADELPHIA, PA.

W. T., age 28 years, consulted the writer at the Wills Eye Hospital in December last, on account of an inflammation of the right eye of three days' standing, though it was elicited that the eye had been inflamed twelve years before, as a consequence of which the vision was not equal to that of its fellow, which had always been healthy. The patient had been in robust health and the affected eye never having suffered a trauma it was thought possible that the ocular inflammation might have been connected in some way with attacks of urethritis with which he had been affected, the first attack having preceded by some weeks the primary involvement of the right eye, and a fresh outbreak of gonorrhea having been contracted shortly before the present inflammation in the eye appeared. A smear was accordingly taken from the cornea of the inflamed eye by Dr. Goldberg, the bacteriologist of the hospital, as it was evident that the ocular inflammation from which he sought treatment resided chiefly in this membrane, and gonococci found to be plentifully present. Gonococci were also found in the secretion from the urethra. Although the patient confessed that there had been more or less discharge from his urethra during the greater part of twelve years, he had never suffered from rheumatism, or other painful affections of the joints

*Read before the section in Ophthalmology of the College of Physicians of Philadelphia, February, 1909.

or body. Since the period of first involvement the eye had been suffused on numerous occasions, but always without discharge or swelling of the lids, nor was the patient able to trace any connection between a recrudescence of the ocular inflammation and an exacerbation of his urethritis.

As the ocular inflammation prior to the time when the writer was consulted was untreated and unobserved by an ophthalmologist, its previous nature was unknown, but upon examination it presented the characteristics of an unusual form of vesicular keratitis, engrafted upon an old macula, the central portion of the cornea being more or less opaque, and the seat of some six or eight small vesicles. The entire membrane was superficially hazy, and near the upper limbus there were three or four small rounded opacities, which probably marked the site of earlier vesicles. The cornea was avascular and the conjunctiva was but little injected. Following the discovery of gonococci upon the cornea and in the urethra, the patient was admitted to the hospital, and was treated locally by heat, atropine, iodoform and later by dionin, and generally, by injections of antigenococcic serum into the buttock, in doses of $\frac{1}{2}$ to 1 cc. of Mulford's preparation.

The injections of the serum were naturally followed with considerable interest, but at no time could they be said to favorably influence the inflammation of the eye. Considerable febrile reaction resulted from the injections, upon a number of occasions the temperature rising to 100° and a fraction Fahrenheit, but it was impossible to definitely determine whether a local reaction in the eye followed or not, as the eye continued to be very actively inflamed for six weeks or more, all forms of local treatment making but little impression upon it. The injections of the serum seemed, however, to exercise some favorable influence upon the urethritis, as the discharge gradually lessened after a few had been administered, although this result may also have been obtained by rest in bed and attention to diet. Notwithstanding their almost continuous administration for more than a month, no harm was done by them, for no abscesses resulted at the point of injection, nor was urticaria remarked.

The patient was finally discharged from the house about March 1st, after a two months' residence, with the eye quiescent, but with vision reduced to counting fingers, as a consequence of a large dense superficial opacity of the cornea, which represented the scars of the original attacks of inflammation plus that of the

areas of ulceration left after the breaking down of the vesicles. The urethritis which was present on admission had also disappeared, Dr. Christian, who had examined him shortly after entrance, and who had reported an acute anterior and posterior urethritis, pronouncing the inflammation healed.

It will be noted that the writer in the title of this paper asserted that the inflammation which has just been described may *probably* have been due to metastatic gonorrhea, for naturally the evidence which points to that origin is too meager and uncertain to render such a diagnosis positive; and yet there is more than likelihood that the urethritis may have occasioned the keratitis, for how else can the discovery of the gonococci upon the cornea be explained?

Byers, in his classic monograph upon the ocular manifestations of systemic gonorrhea, has recorded forty cases of affections of the cornea, of which nine were probably metastatic in origin, eight doubtful in regard to origin, being either primarily metastatic or else secondary to some preceding metastatic conjunctivitis, while one was due to secondary contamination from the conjunctival sac.

Of the nine cases which were probably metastatic in nature, Byers summarized that there were two in which the substantia propria of the cornea was clearly affected, five in which the inflammation was superficial in character, as in the writer's case, being confined in four instances to the epithelial structures. In all seven instances the ulceration seemed to have affected the central rather than the peripheral portions of the cornea. In a series of six of his cases in which the fact was noted, two were double-sided and four unilateral; and in a further series of six cases, the corneal deposits were multiple in five instances and single in one. From these figures Byers asserts that "one is justified in inferring that the keratitis associated directly or indirectly with systemic gonorrhea is typically of a multiple and superficial nature, commonly symmetrical in character and central in situation."

It may be remembered that the writer noted a superficial punctate keratitis in a case reported by him before this section, on November 20, 1906, in association with an attack of conjunctivitis and iritis of metastatic gonorrheal origin in a young man the subject of multiple arthritis, and he has recently observed a small round saturated ulcer near the limbus in a man who was suffer-

ing from a violent attack of irido-cyclitis of systemic gonorrheal origin. Both of these latter cases may be grouped with the eight designated by Byers as being secondary to some preceding metastatic conjunctivitis, while the keratitis observed in the case, the subject of this paper, if due to gonorrhea, should be regarded as primarily metastatic.

In conclusion, it may not be amiss to refer to the employment of gonococcic serum in the treatment of this class of cases, for it would seem that the serum should here be peculiarly liable to be of service. It will be remembered that Torrey first introduced this serum in 1906, and although its employment in ophthalmology has been very limited, nevertheless it has been tried quite widely in the treatment of both acute and chronic urethral gonorrhea, as well as of gonorrheal arthritis. Thus Irons (*Brit. Med. Journal*, July 18, 1908) in a paper before the Chicago Pathological Society, March 9, 1908, experimented with injections of dead gonococci in cases of gonorrheal arthritis and obtained a typical reactivation, which was characterized by a rise in temperature, though often very slight, and an increase in pain and tenderness in the affected joints, with usually some increase in swelling and a variable degree of malaise. The symptoms followed the injection in from 8 to 12 hours and commonly lasted 24 hours. In some instances there was a local reaction at the site of injection, with tenderness, usually redness, and some oedema. Such local signs commonly subsided in 24 hours, though in three cases they persisted for three or four days.

As regards the clinical results, Irons found that in general the inoculations gave better visible results in the chronic than in the acute cases. In a number of subacute and chronic cases in which after a typical acute course there remained more or less indolent swelling and tenderness in one or more joints, after the first injection the signs of infection subsided rapidly. No harm was seen to follow the injections in any instance.

In twenty-three cases of urethral gonorrhea treated by Uhle and Mackinney of the Genito-Urinary Department of the University of Pennsylvania, by anti-gonococcic serum prepared by Parke, Davis & Co., the injections appeared to have little if any curative action, though better results were obtained in patients suffering with arthritis. A general urticarial eruption was observed in seven patients. Perez-Moro has had marked success in the

treatment of six cases of gonococcic arthritis treated with the serum.

Torrey believes that the most important permanent relief which the serum affords in most cases is due to a bacteriological activity. In his preliminary paper he stated that in chronic gonorrhea there are often comparatively few gonococci deep in the tissues, but as an active immunity never arises in man to the gonococcus, the system frequently finds difficulty in disposing of them. According to his views, it seems possible that the serum supplies enough immune bodies to accomplish this, although too few to bring about the destruction of the great number of gonococci which are present in the urethra in acute gonorrhea. He says that this theory has not been substantiated as yet by complete experimental evidence, though the serum has been found to contain both agglutives and precipitives from the gonococcus.

Rogers, Torrey's co-worker, advises that from 20 to 60 minims of the anti-gonococcic serum should be administered in every suspicious case every day, but that in this regard one must be guided by the general condition of the patient and the degree of the reaction of the serum. In some instances it is necessary to allow an interval of four to six days to elapse between the injections.

He has found that the cases which have been benefited are those in which the micro-organisms enter into the circulation, either directly or through the lymphatics, i. e., cases of arthritis and iritis, and more rarely endocarditis, pleuritis and meningitis.

In a case of iritis treated by Rogers and Torrey the first three injections of serum caused a greater congestion and the production of a fibrinous exudate in the anterior chamber, but after two more injections this all disappeared and the eye was much improved.

The writer has employed the serum in several other cases of ocular disease, one a negro with binocular irido-cyclitis, another a young adult with binocular iritis, both of whom were suffering from multiple arthritis, but without benefit or indeed demonstrable effect of any kind. He is inclined, however, to believe that the serum may not have been properly prepared and perhaps but indifferently administered, and therefore desires to suspend judgment regarding the value of such injections until he has made more numerous and better controlled tests.

A FEW OBSERVATIONS ON THE LIFE AND LABORS OF
DR. RICHARD LIEBREICH OF PARIS.

By JOHN O. McREYNOLDS, M. S., M. D., LL. D.,

DALLAS, TEXAS.

In this age of activity in all practical fields of medicine and surgery our energies are so concentrated upon the present and the results we hope to achieve that we are perhaps too much inclined to forget the rich inheritance we have received from those who have already passed or are passing now from the arena of investigation and unceasing toil. We are too often disposed to look upon the



DR. RICHARD LIEBREICH.

present as the parent of all that is worthy of our time and study, and that the medical knowledge of half a century ago should be classed with the wooden plow and the dug-out of the dark ages. And yet a brief review of the work of some of these forgotten forefathers in the healing art would show how meager has been our own boasted advancement in comparison with the progress which was the glory of other days. And in no department of science is this contrast more conspicuous than in the realm of ophthalmology. Von Graefe, or Donders, or Bowman, or Crichton, or Horner, or Liebreich, or Knapp, equipped with the knowledge and armamentarium which were theirs fifty years ago could today enter the consultation room or operating room of our leading successful ophthalmologists and meet the requirements of the present day in a manner that would be surprising to one who had overlooked the thorough preparation and careful methods that marked the labors of that illustrious band of pioneers in the domain of ophthalmic surgery.

This thought has again been impressed upon me by a recent visit to Liebreich in his home in the Villa D'Eylau on Avenue Victor Hugo in Paris. It had been three years since I had seen

him last and even this brief period of time had left its impress upon him and made us feel that a few more storms and beating rains and this distinguished soldier of the "Old Guard" will have joined the silent ranks of those immortals whose genius contributed so much to the early life of scientific ophthalmology.

Liebreich was born in 1830 at Königsberg, Prussia. He commenced his studies in the University of that city, where he won the prize in physiology on account of original histological work. He became the assistant of the illustrious physiologist, Helmholtz, in 1849, at the time that Helmholtz was developing the ophthalmoscope. And being thus informed of this important invention by the author himself, Liebreich was the first to employ the instrument in medical practice. In 1852, he was appointed preparateur of the professor of pathological anatomy in Berlin, and he filled with distinction these duties for a year. In 1853 he became chief of the medical clinic of Professor Barensprung of Halle. In the same year he received the degree of Doctor in Medicine and passed brilliantly the examinations of the state at Berlin. In the meantime he was, as opportunity presented, in close touch with Von Graefe, taking charge of the work of instruction in ophthalmoscopy for a period of eight years. In 1862, Liebreich went to France to introduce the new system of ophthalmology, and was warmly received by the professors of the faculty of medicine, especially by Nelaton, who presented him to his pupils as the "Premier Maître d'ophtalmologie." He was engaged immediately to conduct a course at the Charité and at the Ecole, and at the same time he established his clinic in Rue Saint Andre-des Arts. Soon after his arrival in Paris he published his atlas on ophthalmoscopy. Velpeau, president of the Academy of Sciences at that time, presented the Atlas of Liebreich to his illustrious confreres of the Institute, paying him a just tribute of praise. On the 15th of August, 1864, the labors of Liebreich won for him the Cross of the Legion of Honor, and the same year the German physicians living in Paris elected him president of their Scientific Society. In June, 1865, he operated with marvelous success on Mme. la comtesse de Montijo, mother of the Empress of France, who was attacked with glaucoma, threatening her with complete blindness. Some months later the Empress called him to Neuchatel to attend Princess Anna Murat, who was seriously wounded in the left eye from an accident occurring at the time of the arrival of their majesties at the station of that city. His private practice in Paris

was phenomenal until 1870, when he established himself in London, becoming ophthalmic surgeon to St. Thomas Hospital, and the official reports of this hospital still contain his name on the list of consulting surgeons, although he has not resided in London for many years. Even at the age of 78 his mind is still active, and he feels a keen interest in the profession he has adorned so well. His bearing is thoroughly preserved and his speech is fluent still in the several languages which he acquired in his early life. His hair of silver gray is withstanding well the frosts of nearly four score winters, and his step is quick and sure and he frequently runs up to the fourth story of his residence to attend to his diversions in *art*, which, for many years, has occupied a very prominent corner in his affections. It is an interesting fact to note that perfect function is still retained by his eyes which were the first that were ever thoroughly examined in the living state in the history of the race. It will be remembered that Liebreich, while still an undergraduate in medicine, in 1849, had distinguished himself in physiology and in consequence of this, had been made assistant to Helmholtz, who was at that time working on the problem of the ophthalmoscope. And the personal assistance of Liebreich facilitated in no small degree the consummation of this beneficent invention. Immediately upon the construction of the original instrument, Helmholtz made an examination of the fundus of Liebreich's eyes, which marked the very beginning of scientific ophthalmology, because hitherto the fundus affections were necessarily veiled in the deepest obscurity. It will also be remembered that the original Helmholtz instrument was open to many objections, and it was Liebreich who first devised the new principle involved in a small concave mirror with a hole in the center, making the instrument applicable to both direct and indirect ophthalmoscopy. And this was subsequently improved by him by placing before the aperture in the mirror lenses of various strengths, thus providing for different states of refraction. This instrument Liebreich is using today, and with it he is able to make the most thorough investigation of all parts of the fundus with a degree of accuracy that has never been surpassed. Indeed, almost all of the subsequent forms of that instrument have involved no new principle, but have been modified largely in the interest of convenience of manipulation. But this original Liebreich instrument was not his only contribution to ophthalmoscopy, for he devised what he calls his large ophthalmoscope, which was rather elaborate for general use, but

is the most complete instrument of its kind that has been evolved. However, his contributions to ophthalmoscopy were not confined to the development of instruments, but he became an investigator of the mysteries of the fundus and presented to the world an *atlas* of ophthalmoscopy which was one of the earliest and most accurate of his day. He demonstrated the ophthalmoscope to Von Graefe and became the assistant to Von Graefe in his clinic, taking charge of the work of instruction in ophthalmoscopy for a period of eight years. He showed me his old class record book, dating back to the early fifties, and I was much interested in finding therein the names of nearly all the great ophthalmologists of that day, including such men as Pagenstecker, Horner, Noyes, Williams and others. And I am told by his confrere, Dr. Geo. Bull of Paris that even at the present time the unusual accuracy of Liebreich's ophthalmoscopic examinations is sometimes called into requisition in difficult cases in which leading European ophthalmologists have been unable to arrive at a satisfactory conclusion.

It is interesting to note that the contributions of Liebreich to the armamentarium of the oculist were not confined to instruments of investigation, but also extended to those employed in operations; and even the ophthalmological world has overlooked his authorship of some of the most useful principles of construction which he developed. For instance, the principle involved in the "pince ciseaux" usually attributed to de Wecker, was in reality due to Liebreich. The principle was first applied to the iris forceps and then it was extended to the scissors, and I am told by Liebreich himself that both the forceps and scissors were in constant use in his clinic long before the idea was ever presented by de Wecker. In this connection it is interesting to quote from an original article published in French by Liebreich in 1870, on the operation of iridectomy in which he clearly sets forth the advantages involved in this new principle, together with the expressed conviction that it might be employed to advantage in a number of other surgical instruments. One of the most unique collections of surgical instruments which I have seen is his vest pocket case of midgerts, as they are called on account of their diminutive size. And while the entire set can be very conveniently carried in your vest pocket, they are quite sufficient to make nearly all the operations required in ophthalmic practice. We observe in this collection, which has been in use for about fifty years, the forceps and scissors generally ascribed to de Wecker and also an eye speculum which in later years

has been invented anew both in this country and in Europe. The accuracy of his observations and their remarkable conformity to the established views of the present day can be appreciated only by a review of his published papers in German, French and English on various subjects, but this would carry us far beyond the scope of this cursory survey of his contributions.

Take for example his monograph on glaucoma, and we find that the subjective and objective manifestations of the disease, together with the treatment, operations, prognosis etiology and even his prophecy concerning our future knowledge of the malady have been confirmed by the experience of the last fifty years of ophthalmological progress.

In the opinion of Liebreich himself, one of his most important additions to our knowledge was his system of lateral illumination which has made possible the investigation of the internal structures of the anterior segment of the globe by a method that has a sphere of utility not possessed by any other. It is a matter of interest also that he was the first to perform auto-ophthalmoscopy and also the first to protograph the fundus and apply successfully the microscope in the examination of the living eye. However, his labors have not been confined to ophthalmology, but for the last quarter of a century *art* has been one of the chief subjects of his study and recreation. His home contains some very valuable pictures, including one by Raphael, another by Rubens, and others by various masters of the brush. His collection has also been enriched by his own productions, including magnificent portraits of Von Graefe, Von Helmholtz, and Virchow, some of which were painted from memory forty years after he had last seen the face he was reproducing on canvas. And even sculpture has not been forgotten in his list of accomplishments, and I recall a most striking and life-like bust of Sir Spencer Wells, which represents every phase of strength and character depicted in the splendid portrait of Wells in the Royal College of Surgeons of England. His researches in the domain of art have been rather unusual in their character because of his highly developed scientific mind and his accurate knowledge of the details of anatomy, physics and chemistry. His intimate acquaintance with chemistry has served him well in his investigations relating to the pigments employed by the old masters. He has by a great deal of labor and resourcefulness collected large quantities of otherwise useless scraps of the paintings of the old masters and has carefully subjected these

specimens to a rigid chemical analysis and from these studies he has ascertained many of the important but lost truths of former ages and these will constitute the basis of a volume which he is now preparing but which is not to appear until after his death.

He tells me, however, that his inquiries in this field have already yielded some fruit in the superior character of the pigments employed in his last atlas as contrasted with a similar production of his earlier life. His familiarity with anatomy and the physics of light is clearly shown in his portraits and especially in his representations of the eye. The remarkable accuracy of this work is made even more apparent by the use of a magnifying lens which brings out in wonderful distinctness the entire perspective of the organ of vision showing the depth of the anterior chamber with its background of soft velvet-like iris seen through the intervening aqueous and corneal tissue. Indeed, I may safely say that no painter of ancient, mediaeval or modern times has given a more intelligent study to this particular feature of portrait painting or produced results indicating a more complete mastery of the subject in hand. It is a treat to go with him through the Salon or the Louvre and hear him analyze the elements of success and failure in the various pictures on exhibition, for this is a subject that has occupied his attention for more than a quarter of a century. In fact, as far back as 1872, while he was ophthalmic surgeon and lecturer at St. Thomas Hospital in London, we find him delivering a lecture before the Royal Institution of Great Britain on "Turner and Mulready. On the effects of certain faults of vision on painting with special reference to their works." In this admirable essay, the author shows that the pictures of Turner after 1831 gradually acquired an appearance as if they had been "wilfully destroyed by vertical strokes of the brush before they were dry," and that this characteristic feature was not due to any mental derangement, as supposed by art critics, but to a pathological condition of the eyes, which could be demonstrated by an optical contrivance composed of lenses of different curvatures and tints which would make his later pictures present all the correct features of form and color which were so prominent in his earlier works. In a similar way he shows that the gradually increasing quantity of blue to be observed in the later pictures of Mulready was due to the increasing quantity of yellow in his crystalline lens, and that the paintings of numerous artists whose eyes he had examined had shown distinct and characteristic changes that were fully explained by the

pathological state of their refractive media. Again in 1875, before the Royal Institution, he presented a very classical paper on the "Real and Ideal in Portraiture," in which he emphasizes the importance of a thorough knowledge of anatomy and physiognomy based upon it, contending that this "will preserve the realist from the petty imitation of mere incidental details by the conscious observation of those physiognomic movements of the features which are characteristic of the expression," at the same time learning how to ennoble his works by animation and intellectual expression and thus approach the true idealism." His latest contribution is on "La symetrie de la figure et son origine." This monograph, published in French in 1908, is the result of a most careful study of many thousands of skulls in the museums of France and Italy, as well as the mummies of Egypt, supplemented by a study of different races among the living. He arrives at the conclusion that "asymetry is a normal condition, that perfect symmetry has probably never existed, and from embryological considerations is a consequence, a necessary accompaniment of the erect posture of the species homo." These conclusions have a bearing upon our views concerning ocular muscles and his work along this line was undertaken because of his previous researches on the origin of myopia, on the origin of the difference between the two eyes and the effect of this binocular vision and the fatigue of the sight. It may seem a misfortune that one so gifted in mind and so favored by experience should have retired from active practice twenty-five years ago, thus depriving us of the constant influence of his practical work in ophthalmology. But after all, it sometimes happens that the increasing demands of an uncompromising public leave little time for the investigation of certain scientific problems which require time and means and thorough preparation as well as ripened experience and judgment. So when the full history of ophthalmology shall have been written it may be shown that a wider range of investigation may bring forth some fruits of value which a more distinctly specialized endeavor would have failed to develop.

The following is a statement of Von Graefe regarding Dr. Liebreich and his work:

As early as 1851 Herr R. Liebreich entered into closer relationship with me as student. He had been in Königsberg as amanuensis to Professor Helmholtz, who had just at that time discovered the ophthalmoscope. Since I had myself engaged in practical ex-

aminations concerning the value of the new instrument. I seized the opportunity of making mutual observations with Herr Liebreich, who had come from the birthplace of the new invention. In the following two years, during which time Herr Liebreich ended his studies, became promoted to doctor of medicine and surgery, and passed the state examination as medical practitioner and surgeon. I remained associated with him in scientific work, although this was occasionally interrupted for months. The active zeal which Dr. Liebreich showed for the ophthalmological branch, as well as his excellent gift of observation, coupled with versatile talents of reproduction, determined me in 1853 to assign to him the position of assistant physician in my newly established eye clinic. Dr. Liebreich definitely entered upon the duties of this office in the same year after he had returned from a scientific tour to Wien, Paris, and Utrecht, lasting several months.

I can state today with the utmost assurance that Dr. Liebreich, in the entire period during which I have stood in close relationship with him, has worked in an equally excellent manner as well for the *teaching* as for the *enrichment of science* and for the *practical application of ophthalmology*, manifesting everywhere the same sense of exacting and detailed observation. In the first respect I would emphasize that Dr. Liebreich in the past six years has uninterruptedly delivered public and private lectures concerning the use of the ophthalmoscope, concerning testing of the functions of the eye, and at times concerning physiologic optics, and the histology of the eye with microscopical demonstrations. Of these lectures, which were well attended, I would emphasize as especially useful the course in ophthalmoscopy through which Dr. Liebreich more than any of our contemporaries, has contributed to the propagation of this new method of examination. The attendance upon this course by outside physicians who came here principally on that account increased from year to year, and I do not believe I am overestimating it if I assert that Dr. Liebreich has introduced into the study of ophthalmoscopy successively 600 to 800 physicians.

Concerning the scientific productions of Dr. Liebreich I need to bear no witness, his works, which for the greater part are to be found in the *Archiv für Ophthalmologie*, have been accorded the most general recognition. They contain not only a great amount of new facts, accessible only to one with the finest talent of observation, but they have also in many respects broken new paths

of inspection and examination, the significance of which any competent judge will acknowledge.

Finally, I must extol the great result with which Dr. Liebrich took up the practical application of the art. He performed numerous eye operations, in the beginning under my direction and later altogether independently, here in Berlin, as well as outside, and displayed a promising surgical talent not only through the certainty of technique, but also through the interpretation of indications and the carefulness of after treatment. Further, he repeatedly took my place in the polyclinic and also for a long time independently directed a branch Ambulatorium, finally in the last years conducting a department of the stationary clinic.

So in the laborious professional affairs of my life in this place I have found in the person of Dr. Liebreich a collaborator active and capable in every respect, whom I would painfully miss should he ever be disposed to leave me.

(Signed) PROF. A. VON GRAEFE,
Berlin, 10th of January, 1860.

REPORT OF A CASE OF UNILATERAL RETROBULBAR
NEURITIS DUE TO ETHMOIDITIS WITH
RESTORATION OF VISION.

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The accessory sinuses of the nose are rightfully claiming increased attention from the ophthalmologist, as they are undoubtedly a frequent cause of ocular disease. Many patients so affected disclaim any disease of the nose, and often the nose presents few or no symptoms which could be considered diagnostic of sinusitis.

Nevertheless, the results of the ophthalmic examination in connection with a rhinologic examination made by one who is interested especially in this phase of the work may render a diagnosis certain, which otherwise would be obscure.

One of the most significant ocular symptoms of chronic sinus disease is central amblyopia, varying from the subjective sign of a black spot, more or less constant, before the eye, to an absolute scotoma, and caused by disease of the macular fibres of the optic nerve. The retrobulbar neuritis in such cases is generally supposed to be due to an extension of the inflammation from the sinuses to the optic nerve, but the rapidity with which the retrobulbar neuritis disappears after evacuation of the pus from the opened

sinuses is often a source of surprise, and would indicate that the retrobulbar neuritis was due rather to a local toxæmia than to an inflammatory process. It is readily conceivable that, soon after the supply of toxine through the lymphatics to the nerve fibres ceases, the natural recuperative forces are set to work. Another reason for the supposition that we have a toxæmia to deal with is that the macular fibres are selected for specific action by the inflammation. We all know and look for some toxic substance, like tobacco, alcohol, etc., in retrobulbar neuritis, also known as toxic amblyopia.

Poisons have a selective action on certain nerve fibres, whereas an inflammation by continuity or contiguity is apt to include the whole structure.

Birch Hirschfeld believes that the scotoma is due to a venous congestion as well as to toxic action on the papillomacular bundle. (Van Graefe, *Archiv.*, Vol. LXV, No. 3.)

Sphenoidal sinus disease has been found to be the particular offender on account of its close anatomical relationship to the optic nerve. The posterior ethmoidal cells, also having a close relationship to the optic nerve, may similarly be the cause of the neuritis.

The occurrence of unilateral retrobulbar neuritis should therefore at once cause us to direct our attention to the accessory sinuses of the nose, with especial reference to the sphenoidal and posterior ethmoidal cells.

The case that I wish to report is as follows:—

Mrs. H. G., married, 25 years of age, presented herself on June 5, 1908, with the history that for two days she had had a severe pain or ache in the right eye, accompanied by very dim sight and a constantly present black spot. Her previous health had been good. The right eye had always been divergent, but with good sight. Glasses given two years ago by an expert oculist had been worn constantly.

She is now wearing each eye + cyl. 3d combined with sp. o. 75d, with which her vision is in O. D. 2/30 dimly and 5/7 1/2 in O. S.

Her pupils were, in the right eye 3mm., left eye 2 1/2 mm. in diameter and responded equally and freely to light, accommodation and convergence. The right eye diverged about 40 degrees.

In the right eye the media were clear, the disc oval, the vessels normal, aside from a marked pulsation in the retinal veins.

In the macular region there was a faint haze of the retina. Otherwise both eyes were negatives, ophthalmoscopically.

The field showed a small relative scotoma at fixation surrounded by an absolute scotoma somewhat triangular in shape. Beyond this down and out there was a further relative scotoma to the 15° mark.

The whole field was somewhat contracted in both eyes, more so in the right eye. The patient had not noticed anything abnormal in her nasal conditions, though she remembered that she was sensitive to colds, especially in her right nostril.

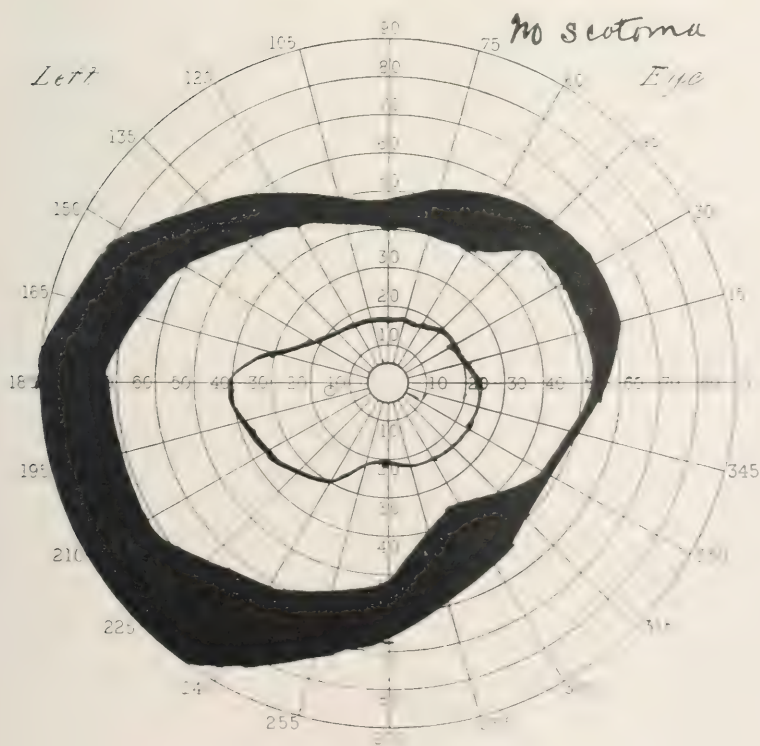
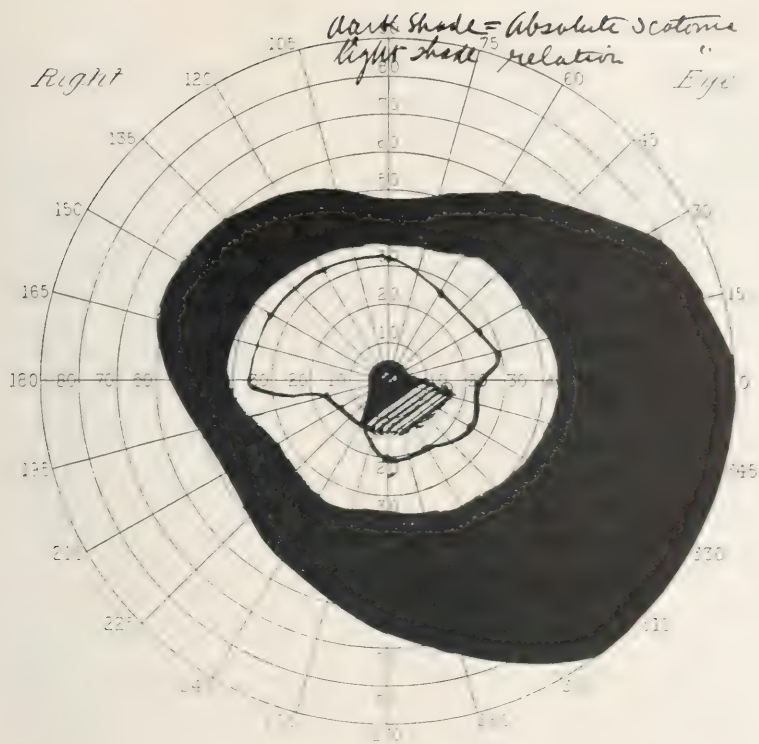
The following day it was noticed that there was a marked tenderness to pressure on her upper inner orbital wall, at which point there was a slight but distinct swelling. Pain was constant in character, and upon pressing the right globe back into the orbit a marked tenderness was elicited. The patient states that she has at present neither nasal discharge nor symptoms. The black spot before her eye was more intense.

An examination of the nose disclosed the fact that the septum was extremely deviated to the right, crowding against the middle turbinate bone so that the latter could not be seen except after free applications of cocaine and adrenalin, forced by the septal obstruction. Cocaine and adrenalin were then applied freely to the middle turbinate bone, following which there was a watery discharge from that side of the nose.

She was given a solution of atropine gr. iv. to 1 $\bar{\text{z}}$ i, of which she used 2 drops in the right eye three times daily. The following day the vision was 2/22. The patient thought that the ocular pain was less. The middle turbinate was very sore to pressure.

On June 10th a small amount of pus was discharged after treatment of the nose. The eyeball was still sensitive when pressed into the orbit. Sudden movement or stooping increased the pain; vision 2/22. On June 11th the vision had increased to 5/xxxv, free pus exuding from above the right middle turbinate bone. The nasal treatment was continued until June 15th, when her vision had reached 5'xx. She was then admitted to St. Joseph's Hospital.

I straightened her septum, removed the middle turbinate bone in large part, and cleaned out such of the anterior and posterior cells as seemed affected. The healing was uneventful, the results being a straight septum in the median line. The ethmoidal cells ceased to discharge in a short time.



Five days later, June 20, 1908, the pain on pressure backward of the eye into the orbit was gone, as was the tenderness and swelling on the inner and upper wall of the orbit. On June 30, 1908, her vision was 5/IX and her field had returned to normal, with no scotoma. One month after the operation her vision was as good as ever—5/6—with her old correction, equal to that of the other eye. The black spot before her eye had disappeared. Recently—February, 1909—the patient was refracted and normal vision (5/5) obtained in both eyes.

Summary. In this case the symptoms were those of monocular retrobulbar neuritis on the right side, with the characteristic scotoma showing involvement of the macular fibres of the optic nerve. It is also of interest in this case that the scotoma was large and absolute in part of its extent. In most of the reported cases a relative scotoma only was present. The right pupil was larger than the left one.

The optic nerve showed no gross change, the retina was slightly hazed in the macular region and there was a unilateral marked venous pulse. There was tenderness on pressure on the right upper inner orbit wall. It was also induced by pressure of the globe back into the orbit.

A greatly displaced septum caused occlusion of the right nostril and pressed the middle turbinate against the outer nasal wall. Relief of this pressure caused a release of pus, after which the sight improved rapidly. In removing the cause by operation the vision returned to normal with a disappearance of the external symptoms.

In this case, therefore, monocular retrobulbar neuritis was the principal suggestion of chronic sinusitis. The blocking of the corresponding side of the nose formed the second indication, and the relief after exudation of a few drops of pus from above the middle turbinate formed the conclusive indication for operation.

THE LOCAL OPHTHALMOLOGICAL SOCIETY.

REMARKS AT THE TENTH ANNIVERSARY OF THE COLORADO OPHTHALMOLOGICAL SOCIETY.

EDWARD JACKSON, M. D.

DENVER.

Ten years ago, St. Patrick's day in the evening, three of us met to found this Society. From that day to this it has never missed a meeting; and it never held a meeting when less than three members were present. From five charter members, our membership has grown to twenty-five. Each year the average attendance at our meetings has been about 70 per cent of our members, while visitors often raised it above the total membership. In no one year has it fallen as low as 60 per cent. The transactions of our society appear regularly in three ophthalmic journals, and notice of work done here is to be found in every European ophthalmic journal that attempts to keep its readers informed of the general progress of ophthalmology. This has been accomplished without effort on the part of anyone that has been felt as particularly burdensome or unprofitable.

All this is creditable for our society, yet this is only the smaller part of what has been accomplished. The really great work of our organization cannot be set forth in phrases and statistics. It consists in the influence that these meetings, and the friendships they have fostered, have exerted upon our methods of study, our habits of reading and observation, our ways of dealing with the cases that we had to treat, our judgments of each other, and through them our judgments of our colleagues throughout the world. The great work of this society lies in the certainty it gives to our conclusions, the inspiration to intellectual activity, the sense of close relation to our fellow workers everywhere, the loyalty to professional ideals and the science of humanity for which our profession exists. These things are not easily to be estimated; but we who have experienced this influence know this part of the work of our society and its importance.

As we think of what it has done for us, probably we all feel a little of the missionary spirit, and would like to impress upon our fellow workers elsewhere some understanding of how much of good, easily within their reach, they are missing through lack of the local ophthalmological society. If we went out on such a mission the first obstacle we would encounter would be the convic-

tion that in each particular city it would be impossible to establish such a society, because there were not enough "good" oculists who would come into it; and there was too much professional jealousy to permit the necessary good feeling among those who would be its members. But I think for all who were not so well satisfied with their own opinions as to be incapable of absorbing new ideas that we would have, in the history of this society, abundant material to refute their errors. I have been credited with a share in the formation of this society; permit me to go a little into personal experiences and impressions.

When this society was formed, as the Denver Ophthalmological Society, this city had a little over 100,000 inhabitants. It was the twentieth city in the United States in point of population; and only four of the larger cities had anything like an ophthalmological society. I confess I might not have had the courage to suggest such an organization had it not been for the experience of a few years before in bringing about the establishment of the Section on Ophthalmology in the College of Physicians in Philadelphia. There, in a city of 1,000,000 inhabitants, where it was said that some 200 doctors were more or less engaged in the practice of ophthalmology, there was absolutely no organization of ophthalmologists in existence. I felt the need of something of the kind for myself so keenly that it seemed impossible that others similarly situated should not have something of the same need. I sought in various directions assistance from those who might co-operate in such an undertaking. Various plans were considered, and it was the judgment of those whose assistance seemed to be most important to the success of the undertaking that it would be best to make the attempt within the College of Physicians.

But everywhere there was doubt, incredulity as to the possibility of forming such an organization. All admitted that it might be a good thing, but they regretted that it did not seem practical to accomplish it. Finally our scheme was whittled down to a request to the College of Physicians to permit its members who were interested in ophthalmology, one evening in the month through the winter months, to meet in its smaller lecture room, which was standing vacant. And this modest request would not have been granted but for the active assistance received from two of the oldest and most respected members of the college, D. Hayes Agnew, then its president, and S. Wier Mitchell, an ex-president.

then and ever since exerting a most powerful and beneficent influence in its affairs. By their assistance the desired permission was obtained, for three years. The meetings were inaugurated on much the same lines we have followed here, the exhibition and reporting of cases being a leading feature. Before the three years were up the success and value of these meetings were so apparent to everyone that members interested in other branches of medicine were actively preparing for similar meetings; and the only question for discussion was the form of an amendment to the by-laws of the college under which sections could be established and conducted.

It was this experience of the mistake that interested, intelligent ophthalmologists seemed to fall into, in judging the possibilities for establishing and sustaining such an organization, before that organization had become an accomplished fact; it was this experience that gave me courage to suggest the formation of our society.

The repetition of brilliant and successful development that is here illustrated tonight makes me wish that the significance of this demonstration could be impressed upon every practicing ophthalmologist in this country. Every city of 100,000 inhabitants in America should have an active, flourishing, useful, highly prized ophthalmological society; cities of one-half that size might have them, if only the real possibilities of the situation could be appreciated.

The real obstacle to their inception and development, back of all local jealousy and lack of self-confidence, is a mistaken idea about the processes of intellectual expansion and professional growth. A few years ago I asked an ophthalmologist (he was not a resident of Denver), a graduate of one of the best eastern universities, a good student, of more than average intelligence and success in practice, why he did not belong to a certain society. He replied: "Well, the fact is, except yourself and one or two others, there isn't anybody west of (a certain eastern metropolis) that I think can teach me much about ophthalmology." I did not make any direct reply; his case seemed hopeless. It was useless to disturb his self-complacency by uttering the thought that occurred to me: "Why, what sort of a fool are you, that you think you are incapable of learning from anybody but your superiors." The man of whom that would be actually true would be distinctly lower in the intellectual scale than the high-grade innocents of

our idiot asylums. The conception of intellectual development that holds that the necessary condition for it is a teacher of higher achievements, to stand over one and hammer things into him, is a conception that does scant credit to the child in the lower grades of a grammar school.

Pretty much all that the greatest leaders of thought learn, they learn through contact with their inferiors. For intellect is a product of contact; contact of some kind, the written page, the spoken word, the intonation, the expression of face, the inherited results of an infinite number of contacts on the part of ancestors; and (if you will divide men into great and small) who have the greatest to mingle with, except inferiors? But this grading men into big and little, better and worse, is in itself one of the commonest and most unprofitable of errors. The important thing is that we are all different. Looking at our cases with different eyes, these never look quite the same to any two of us. It is this getting out of ourselves, seeing things with other eyes, for an instant somewhat differently from our wont, that is the essential of intellectual growth. It is not that we shall see them with the eyes of some particular intellectual giant.

The great teachers of ophthalmology have become great through contact, first, with fellow students and teachers, and still more from contact with those who come to learn of them. These are the conditions of progress, of professional growth, which make valuable the position of a teacher, with students to spur him to intellectual activity; of hospital practice, where colleagues will give the needed stimulus. Such advantages have too often been confined to the holders of such positions. We are coming to understand that they might be opened to every practitioner of ophthalmology, who can occasionally meet with one or more of his colleagues to talk about the subjects in which they are mutually interested.

We are in position to understand how much it improves one's grasp of a difficult case to talk it over with a friend. How much of a stimulus it is, reaching down into memory and arousing attention to its highest activity, to be appealed to by a colleague in regard to a case that is puzzling him; especially when we know that often he is quicker in understanding a case than ourselves. Or, when he states a case and we find that his reading with regard to it has already extended to some book or paper with which we are not familiar. We can appreciate the satisfaction of watch-

ing from year to year how this fellow member or that learns to avoid the error that he once fell into, or grow clear as to matters about which he once was hazy. We can appreciate the *actual pleasure* that it is, to lay aside the air of dogmatic authority of the consulting room, or the pedagogic attitude of the specialist addressing general practitioners, and come together on the frank basis of learning all we can from anyone who will teach, either by what he knows, or by the mistakes he has made. Knowing these things, we should, as opportunity offers, endeavor to spread our appreciation of the value of the local ophthalmological society among our colleagues elsewhere.

In some respects we cannot hope that the record of this tenth anniversary will ever be duplicated. Every charter member sitting at this table, everyone who has ever taken an active part in this society, still interested and participating in our meetings. But it is as certain as anything in human life or institutions can be that the twentieth and thirtieth anniversaries will see this society still active, useful, highly respected: and valued most highly by those who know it best. And in its achievements, as they are then to be summed up, we may hope that something may be credited to our example in encouraging others who seemed to be not favorably situated for it to attempt the organization and support of local ophthalmological societies.

Reports of Societies

WILLS HOSPITAL OPHTHALMIC SOCIETY.

Regular meeting, Monday Afternoon February 1, 1909.

SAMUEL D. RISLEY, M. D., in the Chair.

Dr. S. D. Risley presented three cases from his clinic to show the results of treatment.

Case 1. A. K., aged 60, who came four weeks before with entropion of each lower eyelid. A complete cure has been effected by galvanic-puncture, an interval of a week being allowed between the operation on each eye. A clamp was placed on the lid, and three punctures on one eye lid, and four on the other, were made 3 mm. apart, through the skin, along and parallel to the lower border of the tarsal cartilage. The instrument entered the cartilage but was not allowed to perforate the conjunctival surface. The entropion was relieved immediately. There was very little reaction and no scar, and no detention from work. The man was treated as an out-door patient. A bandage was applied over each eye for twelve hours, though a strip of isinglass plaster might have been sufficient.

Dr. Zentmayer said, in discussing Dr. Risley's cases, that since Dr. Ziegler had demonstrated his method, he had performed this operation in four cases. All but one had been of a spastic nature and the relief was immediate, and so far as he knows, permanent. In the cicatricial case the result has been fair.

Case 2. The myxedematous girl, with interstitial keratitis and salmon patches in the cornea, exhibited at the January meeting, was again shown. The cretinoid symptoms and the keratitis had disappeared, only faint gray nebulae at the pole of the cornea remaining.

Case 3. M. K., a Polish Jew, had been admitted to the infectious ward with acute trachoma two weeks before. The retro-tarsal folds of both upper and lower lids were occupied by closely packed sago granules. The granules were thoroughly expressed by the fluted roller forceps. The man was placed in bed and ice compresses employed for a few hours. Tannin and iodine dissolved in glycerine were applied well into the retrotarsal fold twice daily for a week, and then the method of Prince substituted. A 20% solution of sulphate of copper in glycerine, of which one drop in twenty

drops of water was instilled freely as a wash three times daily. The man was exhibited as cured.

Dr. Risley said he presented the case to illustrate his routine methods in the treatment of acute trachoma and to show that the reputation for chronicity in these cases was not necessarily infallible.

Dr. Charles A. Oliver stated "that being on duty in the Eye Department at the Philadelphia General Hospital at the present time, and having charge of the trachoma ward as a part of it, he was brought much in contact with the various methods for the treatment and the eradication of the disease. From a long experience he had found that his best and most permanent results were obtained by careful and systematic roller expression method, made preferably with the Rusk forceps in a definite and a predetermined way while the patient was under the influence of a general anesthetic. He congratulated Dr. Risley upon the success of his case.

"In regard to the galvanopuncture case, he had recently performed the operation a number of times with excellent results. He had, however, seen elsewhere some unfortunate scarring and irregular distortion of the ciliary border where the operator had been probably too enthusiastic in his endeavors. He commenced it in a certain limited class of cases."

Dr. Frank Fisher exhibited Miss G. V., aged 22, who came to his clinic ten days before, for an opinion and treatment. She complained of general dimness of vision and total night-blindness, and presented the rare combination of pigmented retinae and congenital cataracts.

Her family history revealed no eye troubles nor consanguineous marriages. In the R. E. is a small posterior polar opacity, and opacification of the sectors varying in depth in the different layers of the lens—the whole giving an almost perfect appearance of the spokes of a revolving wheel. In the L. E. the lens shows no distinct polar opacity, but otherwise there is the same appearance as in the right eye. The retinas showed marked pigmentation throughout, especially so in the periphery and best seen to the nasal sides of the nerves. Vision 6/60, and 6/60; and she is unable to read.

Dr. Fisher said he purposes a free discission beginning with the right eye followed by curetting as soon as the cortical is sufficiently swollen; and he hopes for at least one half visual acuity with correcting lens.

Dr. Posey thought that Dr. Fisher would be justified in needing the worst eye, though he did not think that the operation would restore as much sight as Dr. Fisher hoped, on account of the advanced degeneration of the retina and optic nerve which was apparent on ophthalmoscopic examination.

Dr. Oliver said "that through the courtesy of Dr. Fisher he had had the opportunity of studying the case. In view of the character of the lenticular disturbance in the right eye, he deemed it wise, in spite of a resultant necessarily reduced vision at the best, to carefully needle the lens, and to gradually remove all soft opacifying substance by 'curettement'—any remaining capsular and hardened lens debris of irritative or obstructive character being later excised by appropriately made procedures. The left lens, by reason of its central free opening, he would not touch for the time being at least."

Dr. L. E. Marter presented the reports of two cases of traumatism, the first of which amply demonstrated the need for using all methods of diagnosis before we advise so serious an operation as the removal of an eyeball; while the second was used as an example of the mistakes likely to be made when an injured eye has been treated by one not skilled in the surgery of the eye.

A man was struck in his left eye by a piece of steel. The practitioner to whom he applied advised immediate enucleation of the globe because he believed a foreign body was retained in it. When Marter examined the man there was a small wound in the sclera near the limbus, but neither the iris nor the lens was injured and the vision was normal. Deep in the fundus was an angular blood clot. Radiographic exposures failed to detect the presence of a solid substance. In a short time the clot disappeared and fully justified the diagnosis of subretinal hemorrhage due to "contre coup."

The other case was that of a man whose right eye had been cut by a fragment of glass. The general practitioner who treated him prescribed a simple lotion and gave a favorable prognosis. Marter saw the man three days later and he found a laceration of the cornea and sclera with a prolapse and incarceration of the iris in the wound. An iridectomy and careful dressing of the wound speedily reduced the inflammatory reaction and the relief of all symptoms followed in a few days.

Dr. Radcliffe in his remarks said that Marter's cases were in-

teresting and instructive, for they teach two very important lessons. First, that a careful diagnosis should be made before advising or instituting treatment, especially that of a radical character; and secondly, that a guarded prognosis should always be given in doubtful cases. In these days of expert skiagraphy no surgeon is justified in advising a radical operation in a case of supposed foreign body in the vitreous, until the eye had been skiagraphed. He regretted that the subsequent history of the first case was not obtainable.

Dr. Schwenk showed a case of cicatricial ectropion of the lower lids of each eye. He had recently done a Wharton-Jones operation, with local anæsthesia only, on the left eye and was thus able to show the contrast of conditions both before and after operation. Marked reaction had followed the operation, but it was controlled by the application of a warm solution of sulphate of magnesium. Union was by first intention, however. He intends to operate on the fellow eye after a few days.

Dr. Charles A. Oliver exhibited "an extremely rare case of improperly termed 'retinitis proliferans' in a young male adult, who had, for the previous couple of months, suffered from recurrent hemorrhagic extravasations into the vitreous chamber with the gradual formation of a big bag like netting of new vessels in each vitreous humor. In the right eye the condition was found in its incipiency, commencing at and around the optic nerve head, through which the underlying choroidal, retinal and neural elements could be distinctly seen by proper focusing. In the fellow eye, the disease-process had continued to its early terminal stage, as has been so beautifully depicted by Schwenk in Harlan's classic case, as well as in Marple's remarkable example which was supplemented in the discussion by one seen by Risley. He stated that since Hirschberg's first description, the present one was the only one which exhibited the two contrasting stages to such advantage: That of the left eye distinctly proved, clinically at least, that the hemorrhages and the vascular new growths, as has been for a long time taught by him, proceeded not only from the neural and the retinal vessels, but also from those of the choroid and ciliary body. The proliferating massings, which contribute so largely to the final exquisitely beautiful retiform pictures, were fast assuming shape in the more advanced eye. The vitreous humor, which was still *in situ* in the better eye and not replaced by lymph as in the worse fellow eye, was infiltrated with but slightly mobile, fine, elongated,

dust-like brownish and blackish opacities. The vision of the better eye was reduced to one-fourth of normal in a fairly good sized field in which there was a large inferiorly and internally situated absolutely blind area—probably representative of the neural involvement: That of the left eye, which was but one-thirteenth of normal, was similarly shaped and conditioned.

“Knowing the prevalence of rather recently acquired syphilis in such cases, Dr. Oliver looked upon the condition as one which is relatively expressive of what is seen in similar tissues projecting into seral cavities, as may be found particularly in some early cases of cerebral syphilis. In consequence, he had placed the patient upon large doses of alteratives in spite of a stout denial of initial lesion and secondary manifestations, and the absence of external evidence of the dyscrasia. It was his intention within a few days’ time to make direct study of the blood for the spirocheta, as he was doing in a routine way in a number of syphilitics with other intraocular expressions of the disease. Prognosis for good vision with the less affected organ, he felt, was excellent; while that for the more greatly affected one was bad, as the secondary degeneration changes were so great.”

Dr. Fisher said this case is remarkable in that it shows, in the two eyes, the extreme of remote and recent inflammation. Where new vessel formation is so extensive and so well forward as in this case, he is inclined to reject the diagnosis of “proliferating retinitis,” believing the process to have origin in the choroid or possibly in the nerve head. Conditions resembling this, of retinal origin, resist treatment, whereas cases of this type yield fairly well to alteratives and inunctions.

Dr. Oliver showed “a thirty-one-year-old old white woman—married, bright and vivacious—whom he had seen with a binocular attack of parenchymatous keratitis with all of the stigmata of inherited syphilis, twenty years previously in Dr. Norris’ clinic at the hospital. The form of the disturbance, as shown by the clinical notes of the case, carefully made by him at that time, was of the ordinary type. He again studied the case in his own clinic, thirteen years later, when she presented such a classical picture that he had had most careful sketches of the external appearances of the eye made by Miss Himmelsbach, of this city, which, together with an ophthalmoscopic study of the case, he published in ‘The American Journal of Medical Sciences.’ The protuberant and equally

enlarged eyeballs; the so-called *arcus juvenilis* in each eye with the bordering inflammatory zone going directly into the scleral tissues, as described by some of the early English and Irish writers; the thinning of the scleras with their underlying bluish tints, the equally deepened anterior chambers, the small irregular pupils without any synechiæ, the thinned, yet freely active irides, the other external evidences of arrested buphthalmos, the faint remaining canalization of the corneal lamellæ, with an apparently so clear and uninjured central two-thirds of the enlarged membranes, and the almost faded vestiges of a once low grade general choroiditis, made a picture that could never be forgotten. When to this is coupled the fact that the patient enjoyed almost perfect vision for form and color in large, well-shaped fields, with eyes that, remarkably, were moderately hypermetropic, and but slightly astigmatic, it could be seen that the configuration of the globes as to sphericity, in spite of their enlargement (some thirty millimeters in approximate antero-posterior diameter), had not materially suffered."

Dr. Schwenk said that he had seen a number of vascular outgrowths in the vitreous, and he had a number of drawings showing these conditions. He regards them as organized hemorrhages and exudates from the choroid, which he believes to be syphilitic in origin. He cited a case in which there was a marked visual reduction because of a vascularized tissue which projected into the vitreous, 5 diopters or more. There was periostitis of the tibia also, which disappeared under an anti-specific course of treatment. He repeated that he does not regard these vascular masses to be retinal proliferations but as exudates from the choroid. The vessels in them are arteries which are very susceptible to rupture.

Dr. Fisher said he had not seen a case of *juvenile arcus* of which the long history and the antecedents were so accurately presented as this of Oliver's, nor with such marked dental and palatal deformities. He believes this affection to be the result of a halting or a blocking of the inflammatory products of the central cornea in the process of recession—possibly the vascularity has been cut off before peripheral clearing of the cornea was complete.

Dr. Posey asked Dr. Oliver if he remembered the type of inflammation when the case first came under his observation, whether the substantia propria of the cornea was uniformly infiltrated as is

usual, or whether the brunt of the infiltration fell upon the limbal tissues.

Dr. Charles M. Stiles recalled a case of *arcus juvenilis* occurring in his practice several years ago. It was seen in a married woman, aged 32, who consulted him because she was suffering from absolute ptosis of left upper lid. On further examination he found the pupil of left eye widely dilated, the eye being turned completely to external canthus, and there was also some slight proptosis. He made a positive diagnosis of oculomotor palsy. The patient having the stigmata of congenital syphilis, she was placed at once on hydrarg. cum cretæ, and rapidly ascending doses of K. I., under which treatment she made a nearly complete recovery in about three months.

The complete arcus in both eyes was only noticed incidentally, as the acute condition described was, naturally, most interesting. He said he had ascribed the arcus "senilis," as he termed it in his records, to premature old age, associating the latter condition with the hereditary, syphilitic taint, as being the underlying cause of both.

Dr. Goldberg presented the following report of his recent studies in the Pathological Laboratory:

The first case was one of flat sarcoma of the uveal tract, which had been diagnosed clinically as secondary glaucoma, following traumatic cataract, the result of an injury received eight or ten years before. There was nothing in the microscopic examination that indicated the true condition discovered.

The second case proved to be an angiosarcoma of the orbit, the clinical diagnosis of which was papilloma of the orbit. This growth appeared in the orbit several months after the enucleation was performed at another hospital. The history of this case showed that the enucleation was because of an injury which had been received five years before. Dr. Goldberg called attention to the fact that there was a history of injury in each case; in neither of which was it possible to determine what its true nature was from the clinical history and from the microscopical examination. He pointed out that the first patient might, after the enucleation, appear later at another hospital with a recurrent growth in the orbit and there would be nothing to indicate from his then present history the exact condition that had gone before; while the second case might have had the same clinical history as the first case. Flat sarcomata are believed to be very rare, yet Goldberg suggests

that the explanation of this apparent rarity to be simply that as there was nothing in the clinical history or in the microscopical examination of enucleated eyes to reveal the true diagnosis, the specimens are looked upon as commonplace and they are destroyed. The moral, of course, is to examine microscopically each eye-ball enucleated, and every scrap of tumor-like growth found in the orbit and the adnexa.

Dr. Zentmayer said that clinically in the second of Goldberg's cases there had been a small pedunculated growth which had the appearance of a hematoma springing from the conjunctiva of the socket. The result of the pathologic examination shows the extreme importance of submitting to microscopic study all tissues removed from the ocular regions, no matter whether they appear benign or not.

Dr. Zentmayer exhibited a woman, aged 24 years, with nodular opacities of the cornea. The condition had existed for ten years. At no time had there been any inflammatory symptoms. The central portion of the cornea is occupied by numerous yellowish-gray opacities (situated just beneath the epithelium which is here elevated). The opacities vary in shape, being round, triangular and irregular. The periphery of the cornea is hazy because of the presence of minute opacities. Tuberculin was injected which was followed by a febrile reaction; but there was no local reaction.

Dr. Posey said that he thought he had seen several cases of a somewhat similar appearance to the case exhibited by Dr. Zentmayer, but that he had not connected them with the disease described by Groenouw, indeed, as far as he knew Dr. Zentmayer's case would be the first in American literature. His observations confirmed the remarks of Dr. Zentmayer regarding the permanency of the opacities, for despite all forms of absorbifacients which he had used in his cases, viz.: massage with strong preparations of yellow oxide salve, and with varying strengths of dionin, the spots had remained unchanged.

Dr. Oliver said "that while looking at the case with Dr. Zentmayer, he was struck by the general configuration of the two areas to those of the lymph spaces normally seen in the cornea. In 1898 he described and published such an instance under the title of "Symmetrically Placed Opacities of the Cornea in Mother and Son," in the "Transactions of the American Ophthalmological Society." The sketches had been made for him by Dr. B. Alexander Randall of this city. The cases presented the same appearances as

those shown in Dr. Zentmayer's case. They were congenital, sub-epithelial, painless and practically non-progressive. He looked upon the condition as probably inflammatory, and of prenatal origin in family groupings."

BURTON CHANCE,
Secretary.

SECTION ON OPHTHALMOLOGY—COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting, February 18, 1909.

DR. WILLIAM ZENTMAYER, Chairman, Presiding.

Dr. de Schweinitz demonstrated two patients on whom the operation of Kuhnt as modified by Szymanowski had been practised for the relief of senile ectropion. In one patient the operation had been bilateral and in the other unilateral. In all instances, particularly the bilateral case, the result was perfect, and Dr. de Schweinitz recommended this operation as one which seemed to fulfil the indications better than any other with which he was acquainted. Of the patients, two in number, three operations have been performed, Dr. de Schweinitz having done one, Dr. Shumway one, and the house surgeon, Dr. Keith, the third.

Dr. de Schweinitz also demonstrated a case of bilateral simple extraction of cataract with perfect result as to pupil-position and mobility, and with the somewhat unusual visual acuity of 6/4 in one eye and 6/5 in the other.

Dr. Risley congratulated Dr. de Schweinitz upon the admirable result reached in both of the cases presented, and said that in the extraction of cataract it was an unusual experience to secure two central, round, mobile pupils in the same patient.

Double Cupping of the Nerve Head.

Dr. George S. Crampton exhibited a case of chronic non-inflammatory glaucoma. In the left eye, situated within the usual pathological excavation, there could be noted an additional small cup. The tension of the globe was not increased.

Persistent Pains After Enucleation, Apparently Hysterical.

Dr. S. D. Risley presented a young woman whose left eye had been enucleated in August, 1900, for a rupture of the ball at the corneoscleral limbus, produced by a missile on the Fourth of July. Enucleation was refused until the fellow eye showed unmistakable signs of secondary ophthalmia. There was a fluffy fundus.

photophobia, and impaired vision, associated with severe mid-frontal pain and tenderness. A skiagraph failed to show the presence of a foreign body in the injured eye, orbit or periorbital region. The pain and tenderness were not relieved by enucleation. A skiagraph was again made, but with negative results, and the orbit explored, but without finding any focus of suppuration, foreign body, or other cause for the pain and tenderness to pressure which persisted in the ethmoidal region. The fundus condition in the right eye and the acuity of vision slowly improved, but the pain persisted after more than eight years, during which time the girl had regularly haunted the clinic with her complaints. A careful renewed study then showed a spiral field for form and colors and a reversal of the color fields. The fundus of the right eye is now healthy and both the frontal sinus and the ethmoidal cells are free from disease. Dr. Risley regarded the case in its later history as one of hysteria.

In the discussion Dr. Posey cited a case of traumatic delirium following a gunshot wound of the face, the ball traversing the nares and lodging in the crotch formed by the insertion of the optic nerve into the globe upon the opposite side. The delirium appeared about three weeks after the injury, and the patient never recovered her full mental faculties until the bullet was removed from the orbit.

Nodular Opacities of the Cornea.

Dr. Zentmayer presented a patient with nodular opacities of the cornea. M. K., female, aged twenty-four years, single, poorly nourished, and of low mentality. At the age of fourteen years the patient had photophobia, lachrymation, and slight redness of eyes, with failing vision. She was fitted for glasses at that time, but they did not improve vision.

Family history negative.

Examination of the chest shows a high-pitched note and a loud systolic murmur at the base of the heart.

In both corneæ there are numerous grayish dense opacities easily visible with the naked eye, which on examination with the loup are seen to present a great variety of form—rounded, triangular, and principally irregular. They vary in size from 0.5 to 1.5 mm. They are grouped in a somewhat oval area, the upper border of which is just above the center of the cornea and the lower border on a line with the margin of the lower lid, the whole being

lengthened out in the fissural space. There is a tendency for the opacities to arrange themselves in curved lines, and in the left eye they form a distinct whorl. The entire cornea, except the extreme margin, is hazed through the presence of dust-like opacities. The larger opacities are mostly immediately beneath the epithelium, which is elevated, thereby giving to the surface of the cornea an irregular but unbroken surface. The fine opacities occupy deeper layers. The eye is free from congestion and there are no evidences of past inflammation. The sensibility of the cornea is diminished. V. O. D. = 5/25; V. O. S. = 5/200.

There was constitutional but no local reaction to tuberculin. Microscopic examination of scrapings from one of the nodes showed a material resembling hyalin.

Dr. de Schweinitz was acquainted with the patient whose case history Dr. Veasey had reported, inasmuch as he had been an attendant, at the time of the report, in one of Dr. de Schweinitz's public services. His history and lesions had seem to Dr. Veasey more nearly to correspond with those which had been described by Dr. Fehr in his well known paper, "Family Punctate Degeneration of the Cornea." While the reports of nodular or guttate opacities, as described by Groenouw and later discussed by Fuchs, indicate that the disease is rare, if one takes into consideration all of the varieties of this degeneration of the cornea, namely, grill-like keratitis, nodular opacities, and family punctate degeneration of the cornea, etc., as they have already been recited by Dr. Zentmayer, and considers them to be different types of the same affection, the condition is evidently not so very uncommon.

Dr. de Schweinitz referred to a case at present in his service in the University Hospital, in which the lesions were more nearly those which are usually described as lattice-form opacity of the cornea, and in which persistent efforts with massage with yellow oxide of mercury and dionin ointment had been entirely unavailing, in so far as any improvement of the patient's vision is concerned.

Dr. Posey asked Dr. Zentmayer if he was aware of any cause which might have excited the inflammation in the patient's eyes, and referred to a case which presented many of the characteristics of Groenouw's opacities of the cornea which he had seen in a man at the Wills Eye Hospital, who claimed to have been exposed to the fumes of sulphuric acid generated in some of the processes of mining. In this patient the spots were more oval and did not

take the form of a whorl, as noted in Dr. Zentmayer's case. Massage with yellow oxide salve and with powdered dionin over a long period of time did not change the character of the opacities.

Wound of the Left Orbit, Followed by Partial Oculomotor Palsy and Paralysis of the Trochlearis; Recovery.

Dr. de Schweinitz related the following case history: A man, aged forty years, was struck by a flying splinter of wood, which penetrated at the lower and inner portion of the left orbit, between the eyeball and the wall of the orbit, to the depth of 4 cm. The splinter itself was 6.5 cm. in length, and at its thickest part 5 mm. in breadth and 4.5 mm. in thickness. It was removed by a fellow workman with pincers, and twenty-four hours later, on examination, the patient presented complete ptosis; paralysis of the left superior rectus; limited movement in the line of the direction of the action of the internal and external rectus; apparently complete loss in the action of the superior oblique; preservation of the actions of the inferior rectus and inferior oblique; slight exophthalmos, the left eye being, as measured with Hertel's instrument, 5 mm. more prominent than the right; an oval fixed pupil; numerous punctate hemorrhages apparently in the retina on the right side of this membrane; and decided edema of the optic disk, the edges of which were blurred and its surface slightly swollen, the veins being large and tortuous. There was complete anesthesia over the distribution of the supraorbital nerve. Vision was reduced to counting fingers at 30 cm. Under the administration of iodides and mercury and repeated cold compresses followed by hot compresses, the patient gradually improved, and at the expiration of a month practically all of the symptoms detailed, in so far as the imperfections in ocular motility are concerned, had passed away, the only remaining evidence of involvement of the orbital muscles being a right hyperphoria of 5 degrees. Vision had risen to 6/22, beyond which it could not be improved. The disk was extremely pallid on its outer surface. There were numerous spots of atrophy marking the positions of the former hemorrhages, and a marked irregular contraction of the visual field, which was lost below and to the nasal side.

Dr. de Schweinitz discussed the possibilities in the case and decided that direct lesion, as well as intra-orbital hemorrhage, must be invoked to explain all of them.

Dr. S. D. Risley agreed with Dr. de Schweinitz that the symp-

toms were probably largely due to hemorrhage into the orbit, with injury to the orbital tissues.

He referred to a case previously presented to the society, where the tine of a hay rake had penetrated the orbit, resulting in retinal hemorrhages and optic neuritis, with consecutive atrophy. There was no associated ocular palsy. Dr. Risley thought it possible that in this case direct injury might have had some influence.

Suppurative Ethmoiditis.

Dr. Frederick Krauss reported two cases of suppurative ethmoiditis in children result in death. The first case occurred in a girl, aged thirteen years, who had complained of toothache and cold in the head for two days. The left nostril was particularly affected, redness and swelling extending along the nose and forehead, involving both lids of the left eye. There was no proptosis or tumor formation in the orbit, but marked tenderness on the inner orbital surface. The temperature was 100°. The following day the child was delirious, and two days after she was first seen the patient became comatose, with a feeble pulse, temperature 106°, and apparently dying. Operation, without ether, disclosed much tenacious slough-like pus in the anterior and posterior ethmoidal cells. The sphenoid was apparently free of pus.

The second case, also female, aged nine years, whose condition had been diagnosticated as dacryocystitis, was brought into the St. Christopher's Hospital with both eyes tremendously proptosed, the intense edema of the lids allowing them to fall over the proptosed globe, making a characteristic picture. Pus was disclosed issuing from the fronto nasal fissure in small amounts. The temperature never fell below 106°—and the patient died. The post-mortem disclosed no pus in the venous sinuses, no meningitis, or other intracranial lesions. Pus was found in the ethmoid cells.

The author believes that the acute suppurative ethmoiditis can readily be confounded with erysipelas, dacryocystitis, etc., and should be looked for in all orbital inflammations. In the above cases death occurred within a few days after the onset.

Dr. Posey thought it was difficult to ascertain the position of the ophthalmologist in the treatment of this class of cases, for he said that the cases described by Dr. Krauss were evidently instances of a virulent infection, probably of a streptococcic nature. Rhinologists were not in accord as to the best procedure to follow in

these cases, many holding that operation aggravated the process. Dr. Posey thought that sera might be of greater service than operation, and said that, for his part, he would rather rely on this form of treatment in these so-called phlegmonous cases of sinusitis after the infectious diseases of childhood than on operative interference.

Dr. S. D. Risley said he quite agreed with Dr. Posey in his statement regarding radical operations in acute sinus affections associated with acute infectious diseases. He believed that operative interferences were apt to hasten a fatal termination; moreover, after the proptosis, edema of the eyelids and chemosis of the conjunctiva were present, showing that thrombosis of the cavernous sinus had already occurred, operations are useless. He thought a definite distinction should be drawn between this group of cases and chronic disease of the nasal fossæ and the accessory sinuses, with acute exacerbations. Dr. Krauss' contention that in these cases also there was danger of involvement of the cavernous and other intracranial sinuses was of great interest and was borne out by Dr. Thompson's observations, showing that the danger is especially imminent in disease of the sphenoidal sinus. In this last group of patients Dr. Risley thought it important that operation for the securing of free drainage should be done as early as possible.

Dr. Krauss, in conclusion, stated that the cases reported by him were moribund at the time of the operation, and no serum or other treatment would have been of avail. The operation did establish a positive diagnosis. As in appendicitis, if the disease does not quickly subside under treatment, but shows a steady tendency to increase, immediate operation should be advised. Late operation as, for instance, after involvement of the cerebral circulation, is practically useless. Early operation in the author's hands has always been devoid of danger, with practically no scarring or other deformity. Treatment with sera in the early stages of ethmoiditis suppurativa may be a strong factor in the future, but in the late stages it will probably prove to be of no value. Early recognition and prompt treatment are strongly urged in all cases.

Avulsio Bulbi.

Dr. Carl Williams presented a paper on avulsio bulbi, and related the following case history: The accident occurred while the patient was driving along the street at nightfall. The end of

a gas pipe protruding from a wagon drawn up at the curb struck the eye in such a way that it was torn from the orbit and lay upon the cheek. The bulb was uninjured, but was attached to the orbit by the external rectus muscle. The optic nerve was ruptured about 7 mm. behind the globe.

Dr. Williams referred to the infrequency of the accident, and stated that a search of the literature resulted in his finding twenty-three similar cases. Seven of these were cases of self-enucleation occurring in the insane; two occurred in the new-born, while fourteen resulted from various kinds of accidents.

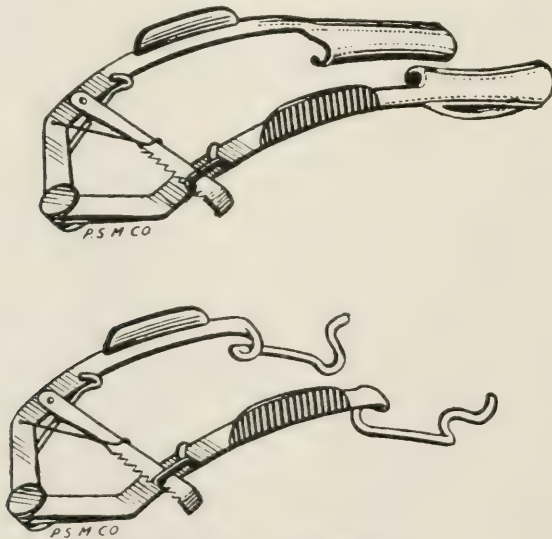
In favorable cases, Dr. Posey suggested the possibility of replacing the globe in the orbit.

Dr. Harbridge (by invitation) stated that he had seen a case of avulsio bulbi in a woman, aged forty years, the subject of epilepsy.

During a convulsive seizure the patient fell upon a stick two and one-half feet long and the thickness of the forefinger, completely avulsing the globe, the only attachment being a few strands of the inferior rectus muscle. The optic nerve was severed 4 to 5 mm. back of the globe.

Eye Speculum.

Dr. W. T. Shoemaker exhibited a new eye speculum, which was made by the Penn Surgical Manufacturing Company of Phila-



Shoemaker's Eye Speculum

delphia, embodying certain suggestions which he had made to them. Among its good points the following features were cited: It is light in weight and short longitudinally, thus bringing its center of gravity nearer to the eye, and reducing materially the tendency which many of the longer and heavier speculums have of displacing themselves by their own weight and leverage.

The blades when in use are parallel and not divergent. This permits of an even and uniform exposure.

It can be operated with one hand and has a quick release, two points which are impossible with any speculum having a set screw.

The tension can be changed at any time to suit the needs of the case and the operator.

It will be made by the Penn Surgical Manufacturing Company, with solid blades or with wire blades and of steel or German silver, the latter material being necessary if the speculum is to be used in magnet operations.

Dr. Shoemaker then stated that a universal speculum probably will never be obtainable, nor would such be particularly desirable. All of the speculums, or most of them, on the market have some good points and are suitable for certain eyes, so the surgeon who does much operating will probably always find it necessary to have a number, from which the one suitable for the individual case can be selected.

T. B. HOLLOWAY, M. D.,
Clerk.

COLORADO OPHTHALMOLOGICAL SOCIETY.

Meeting of February 20, 1909, in Denver.

DR. DAVID A. STRICKLER, Presiding.

Hyalitis.

Dr. W. A. Sedwick presented a man of thirty-one, with a history of dark spots having occasionally appeared before the left eye for eleven years past, and an attack of la grippe each winter. One child was tubercular, a brother's lenses were cataractous at the age of 27 years, and the patient was a health seeker in Colorado. Previous treatment for the opacities, probably with K. I., had been of no benefit. The right eye was normal. The vision of the left eye varied quickly from 20/30 to 20/80, up and down, and transient hemiopia occurred. At times a gauzy film had appeared before the left eye, without pain or inflammation, followed by dark spots and floating bodies, with reduction of vision to

objects of considerable size a few feet away. Vision had always returned, as above, after these attacks. The ophthalmoscope revealed a very hazy vitreous, with many floating bodies of various sizes.

DISCUSSION.

Dr. Hess suggested soda cinnamate injections.

Drs. Coover and Davis advised tuberculin.

Dr. Chase would use mercury if not tuberculin.

Drs. Ringle and Patterson would examine the accessory nasal sinuses carefully.

Dr. Black would guard the general health, considering tuberculosis probable.

Dr. Jackson said that the vitreous opacities, probably caused by hemorrhage, would account for the changeable vision, and that the half-vision could be explained by a posterior opaque mass swinging over one-half of the macula. He thought the case possibly tubercular.

Dr. Libby thought the sudden and not transient losses of sight were due to fresh hemorrhages into the vitreous. He recalled a case of hyalitis, with anterior fixed opacities in both eyes and floating masses in one vitreous body, closely following an attack of la grippe in a young woman known to have had a normal fundus and clear media except a few dots of peripheral opacity in each lens.

Hemorrhagic Retinitis.

Dr. D. A. Strickler showed a woman, aged seventy, who had first come for examination April 20, 1908, complaining of dimness of vision and occasional pain after taxing the eyes. R. V. = 20/40, L. V. = 20/30—, with correction. There was a small central lenticular opacity, with normal fundus in each eye. August 26th, R. V. = 20/40, L. V. = 20/40+. On February 10, 1909, the patient noticed reduction of vision in the right eye, to light perception, but no change in the sight of the left eye. The fundus showed marked retinitis, tortuous vessels, and numerous small, fresh hemorrhages scattered over the retina. The arterial tension was 200 mm. Chemical and microscopical examination of the urine had been negative.

DISCUSSION.

Dr. Patterson recalled albuminuria in a patient of about

fifty-five, with tortuous retinal vessels, one eye presenting hyperemia of the optic disk, the other profuse retinal hemorrhages.

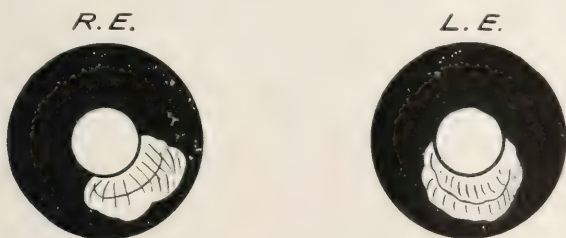
Dr. Black would endeavor to reduce the blood pressure and keep it down by nitrate of soda, intestinal elimination, cereal and vegetable diet, and recalled a case in which the blood pressure had been brought from 240 to 160 mm. in three months and the heart action restored to normal, while spinach was the sole article of diet. He also spoke of a woman who had lost one eye from hemorrhagic glaucoma. Later vitreous hemorrhages followed a drop in pressure from 160 to 110 mm. Under digitalis, strophanus, nuxvomica and a stimulating diet the pressure returned to 130 or 140 mm. and the hemorrhages ceased.

Old Socket Injury.

Dr. D. H. Coover presented a man of 32, with socket injury of twenty years' duration, and loss of part of the orbital margin. The upper lid was attached to the periosteum above, and the lower lid was everted. The stump of the eye was *in situ*. Dr. Coover asked for suggestions as to making a socket for an artificial eye, which were given.

Binocular Localized Atrophy of the Iris.

Dr. Coover also showed a man with atrophy of each iris, occupying a space concentric with the lower margin of each pupil,



extending back about $2\frac{1}{2}$ mm. from the pupil and 6 to 8 mm. laterally. The iris vessels, stroma, pigment cells and most of the sphincter were gone. The radiating, but few of the circular fibers showed. The iris reacted to light elsewhere, but not in the atrophic part. A hyper-mature cataract showed through the atrophic iris in one eye. There was no history of injury or inflammation in either eye.

DISCUSSION.

Dr. Black thought the absence of blood vessels was congenital, and the lens opacity probably so. In removing the cataract he

would make incision below, take out part of atrophied iris and have it examined microscopically.

Dr. Davis thought the eye was quiet and the lens cataractous from lack of nutrition.

Dr. Jackson had seen several cases of atrophy of the iris; some after injury, others following iritis. He referred to Dr. Casey Wood's case of spontaneous absorption of the iris, and his own published case of exfoliation of the anterior layer of each iris. He thought there was probably some congenital binocular defect in Dr. Coover's case: that the absence of vessels suggested vascular disease as the causation, and that the iris was probably adherent to the lens-capsule below.

Note.—Dr. Coover later removed the cataract, making the incision above and doing a small iridectomy. Through the atrophied segment of iris below and the operative coloboma above the usual black appearance of the fundus showed to the unaided eye. Most of the cortex was liquid and the nucleus firm, the cataract being of the congenital type.

Blindness from Gastric Hemorrhage.

Dr. J. A. Patterson reported two very recent enormous hemorrhages from the stomach, in a period of four days, following indigestion, in a man of about thirty-two, with history of syphilis. Vision had been lost after the first hemorrhage. When seen by Dr. Patterson, six days after the first bleeding, both disks were pale, the retinal vessels were seen through a haze, and there was central scotoma. Salt infusions proved of no benefit on the seventh day, but nitrite of amyl given on the eleventh day seemed to improve vision somewhat; but the mind remained dull.

Central Retinitis With Scar Tissue.

Dr. Edward Jackson reported a boy supposed to have had good vision until 12 years old. After an attack of measles he had very soon taken up his studies, without the aid of glasses. Vision then failed. When seen later by Dr. Jackson there was an area around each fovea of $\frac{1}{4}$ disk diameter, and as white as the nerve head. It was smooth, had fine vessels, and looked like a "hole in the macula," except for the absence of pigment margins; but the surface was level with the adjoining fundus. The horizontal oval of the macula showed radiating reflexes. V. = $\frac{4}{20}$. With the correction of 0.5 D. astigmatism in one eye, 1.00 D. in other, and 3.50 D. hyperopia in both: R. V. = $\frac{4}{12}$, L. V. = $\frac{4}{15}$ mostly.

Sclero-Keratitis.

Dr. Melville Black reported a case of sclero-keratitis with lachrymal obstruction, treated about 12 years ago. There had been some recurrences in the first three years, but none after that. Now believing the ocular disturbance of tubercular origin, he had lately administered tuberculin. Reaction followed, and so the patient was put under tuberculin treatment.

Dendritic Ulcer with Herpes Facialis.

Dr. E. W. Stevens reported very numerous herpetic blebs on the lips, following a chill and other grip symptoms, in a patient of forty-five. Dendritic corneal ulcers appeared twenty-four hours later. He also recalled a very stubborn case of the same character, previously reported to this society, in which nitric acid was the most effective of the many remedies applied to the ulcers. Neither patient was malarial.

DISCUSSION.

Dr. Davis suggested the galvano cautery for the dots, or lines of ulceration.

Cases Previously Recorded.

Dr. Bane stated that gradual restoration of vision to 20/20 had occurred in his case of central scotoma, reported at the January meeting.

Dr. Patterson reported marked improvement in the pannus, under applications of citrate of copper, in a case which he showed at the last meeting.

Dr. Ringle reported complete absorption of the lens in the case of traumatic cataract presented by him at the December, 1908, meeting. Needling of remaining capsule had been followed by a cloudy aqueous, which soon cleared, the resulting vision being 20/30 with a 12.00 D. spherical lens.

GEORGE F. LIBBY, Secretary.

CHICAGO OPHTHALMOLOGICAL SOCIETY.

Meeting of February 8, 1909.

The President, DR. FRANK ALLPORT, in the Chair.

Acute Choroiditis.

Dr. G. J. Schneider, Elgin, Ill., exhibited a boy, aged 17, who noticed, six months before, that he could not play ball because he never was sure of the position of the ball. Examination showed

cornea, sclera, iris and reflexes were normal. Vision, left eye, equals $4/200$; right eye, $20/40$. With the ophthalmoscope the macula of the left eye was seen to be enlarged to one-half the size of a silver dime, circular with small dark radiating striae; right eye, the ground was similar to that in the left eye, except that the macula was smaller and the striae were not so marked. Physical examination negative; personal and family history negative except that one brother has strabismus.

Dr. Dodd thought this case to be one of acute choroiditis due to a severe chilling. He has seen several of these cases in which he had obtained a definite history of chilling.

Dr. Snyder thought that it is a retinal lesion rather than a choroidal lesion.

Neuroretinitis Diabetica.

Dr. Major H. Worthington exhibited a man, aged 51, who about two months ago noticed that he could not distinguish objects with the left eye. For the past five or six years he has suffered much from thirst and has had excessive urination. Vision, right eye, $20/20$; left eye, $9/200$. In the eye there is every appearance of albuminuric retinitis, although repeated examinations have shown that there is no albumin in the urine, but from .8 to 1.5 per cent of sugar; specific gravity 1022. The mother died of pulmonary tuberculosis, and the father from a carbuncle of the cheek. Patient had typhoid fever thirty years ago. Denies venereal history.

Dr. Casey Wood was inclined to regard this as a case of thrombosis of the lateral vein, showing the pictures of changes in the vein.

Punctate Superficial Keratitis.

Dr. George F. Suker exhibited this patient. He was treated for four or five weeks on the expectant plan, and by exclusion he discovered that the middle turbinal was cystic at its posterior end, involving the anterior ethmoidal cells. Vision was $22/100$ —; correction, plus 2, combined with —3, axis 25. Vision did not improve under treatment, and ten days ago the ethmoid cells were removed, together with the middle turbinate. Vision, with correction, now is $20/20$. The spots in the cornea are now very minute. They never were confluent. There was never any evidence of inflammatory reaction. The other eye was never involved in the process.

Dr. Thomas Faith thought that unless the lesion in the cornea had been very much worse than it now seemed to be, there must have been something more than a corneal trouble. There was some evidence now of corneal trouble, but hardly enough to have reduced vision to 20/100.

Dr. Suker said that these spots were visible to the naked eye, and now they can scarcely be seen with Berger's loop and condenser.

Cilia in Anterior Chamber.

Dr. Mortimer Frank showed a patient, 21 years old, who, when three years of age, was accidentally struck in the eye with the point of a pair of scissors. One of the ciliar of the eyelid evidently had been driven into the eye, and has been imbedded there ever since, to the temporal side of the limbus, midway between the posterior surface of the iris. It has never produced any irritation.

Dr. C. A. Leenheer saw a patient a year and a half ago who was working with a drill, which broke and produced a perforation injury of the cornea. The metal carried in one of cilia, which imbedded itself in the lens. The lens is almost completely absorbed. One end of the cilia was on top of the iris. With a plus lens the patient has about 20/100 vision in that eye.

Dr. H. B. Young some time ago saw a case of cilia in the eye of twenty years' standing, and although the lens has been absorbed, there were no symptoms.

Double Tarsectomy.

Dr. Mortimer Frank exhibited a young man on whom he did a double tarsectomy for trachoma, with complete pannus of both eyes, seventeen months ago. The result was entirely satisfactory.

A Case of Traumatic Optic Atrophy.

By Dr. A. H. Andrews. F. K., aged 27, a machinist, was injured December 27, 1908, by falling backward and striking his head against a steam pipe. The patient thinks he was unconscious for a few minutes only, vomiting afterward, but walked to his home, a few blocks away. The next morning he discovered that he was totally blind in the right eye. I examined this patient first on December 31. There was an abrasion on the back of the head on the right side, but no depression of the skull. The fundus of the right eye was examined under a mydriatic. The retina was white and thrown into folds, the upper temporal and lower nasal being most prominent. The difference between the

depressions and elevations seemed to be 3 or 4 D. Both the veins and arteries were smaller than normal, and the margin of the disc could not be distinguished. The patient was placed in the hospital for two weeks, where hot applications and massage were administered. The folds in the retina gradually smoothed out, and the vessels, especially the veins, have gradually assumed their present condition. As now seen the veins can hardly be distinguished in places, while in other places there seems to be a small amount of blood in them. The arteries are more uniform in size, but much smaller than normal. A number of granulation areas can be seen. Along all the larger blood vessels can be seen perivascular degeneration. The principal point of interest in the case is the rapid fundus changes, evidently caused by interference with the circulation, due to a distant injury.

Dr. Thomas Faith thought that Dr. Andrews' case was one of fracture of the orbit, which would account for the rapid changes taking place.

Dr. Andrews stated that the rapidity of the vascular changes was most interesting. Ten days ago the veins were full, although not distended. Three days later they were not quite so full, and three days ago they were empty. At the present time there is practically no blood in the veins. The perivascular degeneration has been progressive, as the veins and arteries shrunk. There has been no pain or other disturbance, other than that the patient is totally blind in that eye.

Inflammatory (Tuberculous) Swelling in Conjunctiva.

Dr. Charles P. Small exhibited a young man who had an inflammatory swelling in the conjunctiva of the right eye, which somewhat resembled a phlyctenula. In the left eye there is a deep-seated opacity of the cornea. The patient appears to be entirely well, although when a young boy he had trouble with his hip joint, thought to have been caused by a fall. A few years ago the joint was resected and is now ankylosed. He also had scarlet fever with otitis media, the suppuration continuing for a number of years, then stopping, only to break out afresh. The ear is still suppurating. The Calmette reaction was looked for, the tuberculin being instilled into the left eye. A marked reaction was obtained.

Dr. W. E. Gamble thought that the process was rather too acute for tuberculosis, and that while a positive Calmette was

obtained, this did not necessarily imply that the tuberculosis was of the eye. The focus might be elsewhere in the body.

Dr. Oscar Dodd considered it a typical case of tuberculous sclero-keratitis, such as Verhoff, of Boston, reported. Verhoff explained the paroxysmal appearance and disappearance of the nodules by assuming the presence of some focus in the body elsewhere than in the eye. Therefore Dr. Small's case would probably soon subside. He does not like to use the Calmette test, because of the bad results which are likely to follow. He knows of instances where the reaction persisted for months, even starting up a latent process.

Hysterical Blepharospasm; Report of Cases.

Dr. N. Remmen reported three cases of hysterical blepharospasm.

Dr. L. W. Dean referred to a case of double-sided functional amblyopia and blepharospasm with one-sided deafness that he had had under observation and in which treatment was ineffectual. Finally the patient was placed in a college for the blind, where she was put to work in the kitchen. After two or three months she was discharged, apparently well, although the fields were badly constricted. Eight or nine months ago she returned with one-sided amblyopia and blepharospasm, from which she is still suffering. Treatment is ineffectual.

Dr. D'Orsay Hecht emphasized the fact that hysterical blepharospasms, as well as many other hysterical conditions referable to the eye and eyelid, are of great interest to the neurologist, who is likely to see quite as many of these cases as does the ophthalmologist. It is regrettable that these patients are not seen early enough, as this is a matter of some consequence in instituting successful treatment, depending upon the promptness, more especially in the cases of very acute onset. When a patient has been subjected to a protracted treatment at the hands of the oculist, the chance for a timely and efficient cure is certainly impaired. He thought that there was some ambiguity clinging to the term blepharospasm, and that it was too often used interchangeably with the more common expression of habit spasms or tic. The eyelid tic, particularly in its unilateral form, is perhaps the most common of all tics. The condition of blepharospasm should be more thoroughly differentiated from tic than it is. A blepharospasm should be regarded as such only so long as it is contingent upon an acute

sensory irritation, a demonstrable lesion or some irritation succeeding it. As soon as the source is removed, and the irritation no longer continued, it should cease to be called a spasm, and becomes purely a tic. The physical has been replaced by the psychic impression, and the subsequent treatment must depend upon a thorough appreciation of this fact.

With reference to the second case reported by Dr. Remmen and referred to by him as incurable, Dr. Hecht thought it should be looked upon as an obstinate case, one not likely to yield as quickly as if the onset had been acute, but nevertheless not without an ultimately good prognosis.

As concerns the hysterical ptosis, referred to as occurring in a child, that manifestation was rather unusual, but not at all rare, if one keeps reminded of the fact that hysteria occurs very much more commonly in children than is generally thought. Eyelid tic, chronic blinking, is very common among children. In making a diagnosis of hysterical ptosis, he thought it relevant to add that myasthenia gravis should not be lost sight of as a diagnostic possibility. Dr. Hecht cited an instance in his own practice of what the oculist would have chosen to call hysterical blepharospasm, which could not be so regarded if it is admitted that no demonstrable sensory irritation was causative of the condition. A man had attended a banquet, in the course of which a flashlight picture was taken. The technic had not been perfected to the point of collecting the smoke in bags, as is since the custom. With the bright flash of light there developed a strong tonic contraction of the lids of both eyes, which very promptly gave way to continued clonic spasms. He was seen within forty-eight hours of the occurrence, and after a careful examination Dr. Hecht concluded that there was more of a psychic element than one of sensory local irritation, although the smoke might be regarded as such. A very powerful galvanic current was passed through the head by placing an electrode at each temple, producing a well-known sensation of a flash of light. This galvanic sensory impression, reinforced by emphatic suggestion, caused an immediate cessation of the aggravated tic, and, after two more applications on successive days, permanent relief was had. Here was an instance in which the promptness of the remedy applied, together with some ingenuity in the plan of treatment, was conducive to a favorable result.

Dr. W. E. Gamble reported a case in this connection. A child, four years of age, developed blepharospasm after an attack of

measles. All efforts to produce a cure were ineffectual. The mother of the child had a bottle of peppermint in the cupboard on the same shelf with a bottle of atropine. One morning the child got hold of the atropine bottle, drank some of its contents, and became thoroughly intoxicated with atropine. The necessary antidotes were administered, and the child recovered. The blepharospasm had subsided, and remained away for two weeks, and then returned. The child took violently ill with pneumonia, and the blepharospasm subsided and never returned.

Dr. William H. Wilder asked Dr. Hecht in regard to the differentiation of these cases of tic from blepharospasm. Sometimes it is quite difficult to say whether there is any lesion in the eye that might excite blepharospasm. Sometimes such cases seem to be excited by retinal hyperemia, manifested by peculiar granular appearance of the pigment layer of the retina around the yellow spot. Such persons oftentimes have more or less photophobia, and often are persons to whom the electric light is very annoying. He has had one case in which he had to interdict the use of electric light for reading because of its influence on the retina. These cases are more marked when caused by a very strong flash, such as is seen when a strong current is suddenly grounded. He has seen cases where such a flash has caused both conjunctival and retinal hyperemia. The men who get that way are put to work to blow out a plug which resists the ordinary mechanical means of blowing out. The face must be protected with a very dark glass to avoid burning. These men will often have a blepharospasm follow on the retinal hyperemia, so that it is difficult to differentiate between the tic and the blepharospasm caused by some demonstrable lesion.

Dr. Hecht said that it was perhaps not wholly essential that the sensory irritation be demonstrated, since, to his way of thinking, anything that would induce a hyperesthesia in the ocular apparatus could be regarded as sufficiently irritant and unpleasant. If it were enough to cause involuntary tonic or clonic contraction of the eyelid it, properly speaking, would be a spasm. Necessary for its continuance would be a psycho-neurotic element, and with the former removed, but the latter remaining, the premises were favorable for the superimposed tic; in other words, in all or nearly all of the cases that develop tic there is a substratum or psychic or neuropsychic instability which must be sought for and recognized. Given the same amount of sensory irritation in a normal individual, a tic would not be expected to supervene.

Dr. Wilder asked whether neurologists entertained the idea that autointoxication plays any role at all in producing these habit spasms.

Dr. Hecht said that so far as the curability of tics is concerned, it has been clearly demonstrated that it is a matter of stimulating in patients a better capacity for motor discipline and persistent efforts at re-education. Tics do get well, even after they have been chronic. He has had occasion to treat several apparently intractable eyelid tics by keeping patients in a darkened room, with the instruction to rhythmically half open and close the eye, while following this maneuver intently by looking into a looking-glass and persisting in it for one hundred counts. Many modifications of these procedures may be instituted, and considerable ingenuity applied in this educational method of treatment. It may take many months to bring about improvement, and then again, with the slightest provocation, there may be recurrences, but in spite of these handicaps not all cases that are chronic and discouraging should be looked upon as incurable.

Dr. Remmen said that in one case he corrected the refraction error and encouraged the family not to refer to the patient's trouble. The patient recovered. The tic in this case consisted of a little jerking of the eyelids, a twitching. He believes that a blepharospasm is a very much more violent affair than the ordinary tic.

Improved Shell for Tenon's Capsule.

Dr. George F. Suker exhibited a shell that is a substitute for the shell usually used a Mule's operation. It is enclosed in the capsule of Tenon, and gives a large stump for an artificial eye. The shell is an almond-shaped glass globe. It causes no irritation, and permits of free lateral movement of the artificial eye.

Dr. Oscar Dodd has had the trouble of not having an artificial eye fit properly over the ordinary sphere. Motion is suspended or imperfect. He thought that Dr. Suker's shell would probably obviate that difficulty.

Dr. Suker emphasized the necessity of perfect asepsis. The conjunctival sac must be absolutely free from discharge, more so than in a cataract extraction. Since using this modified sphere, he has had less difficulty in fitting an artificial eye, and better results with regard to motion.

WILLIS O. NANCE,
Secretary.

CLINICS IN PHILADELPHIA, JUNE 1.

The ophthalmologists of Philadelphia have arranged a series of clinics for Monday, June 1, for the physicians in attendance at the A. M. A. The clinics will be held as follows:

12 M.—The Polyclinic Hospital, Nineteenth and Lombard streets, Dr. Sweet.

12:30 P. M.—Medico-Chirurgical Hospital, Eighteenth and Cherry streets, Dr. Fox.

1 P. M.—Pennsylvania Hospital, Ninth and Spruce streets, Dr. Schwenk.

2 P. M.—Wills Eye Hospital, Nineteenth and Race streets, Drs. Berens, Fisher, Oliver, Pontius, Posey, Radcliffe, Risley, Schwenk, Zentmayer and Ziegler.

3:30 P. M.—University Hospital, Thirty-fourth and Spruce streets, Dr. de Schweinitz.

4:30 P. M.—The Philadelphia Hospital, Thirty-third and Pine streets, Dr. Hansell.

Notes and News

Dr. F. Park Lewis of Buffalo has gone to Italy for several months.

Dr. S. P. F. Cook of Gloucester, Mass., has recently returned from a sojourn in Egypt.

Prof. Dr. Schleich has been appointed rector of the University of Tübingen for 1909-10.

Dr. N. Prawossud, privatdocent for ophthalmology on the medical faculty of Moscow, died recently.

Dr. Joseph Beck has been appointed to the staff of the Chicago Eye, Ear, Nose and Throat Hospital.

Dr. John F. Rowland of Hot Springs, Ark., was married March 25 to Miss Lillian Driver of Osceola, Ark.

Dr. John A. Donovan of Butte, Mont., has been elected president of the Silver Bow County Medical Association.

Dr. and Mrs. Lucien Howe of Buffalo are in Italy to attend the International Congress of Ophthalmology, held in Naples.

Dr. Alexander D. McConachie of Baltimore has been made eye and ear surgeon on the staff of the Cecil County Union Hospital at Elkton, Md.

Dr. Harry Butler, eye, ear, nose and throat surgeon to the Children's Home and Eastern Maine General Hospital, Bangor, died March 23, aged 40 years.

At a dinner given at the Bellevue-Stratford Hotel in Philadelphia, in honor of Dr. Charles Karsner Mills, Dr. Geo. de Schweinitz acted as toastmaster.

Drs. Herman Knapp and Arnold Knapp of New York announce that the Archives of Otology will no longer be published. The journal closed with the December, 1908, number.

Colorado is the next state to fall in line and pass a law establishing an annual examination of the eyes and ears of school children by school teachers as promulgated by Dr. Frank Allport.

Dr. Wilbert E. Harriman, professor of ophthalmology in the veterinary section of the Iowa State College, at Ames, Iowa, died at his father's home in Hampton, Iowa, March 15, aged 36 years.

The St. Louis Medical Society, through its Ophthalmic Section, has appointed a committee to deal with the optometry bill now before the Missouri legislature. The better class of the St. Louis opticians are opposed to the bill.

Prof. George W. Tannehill, 70 years old, the "blind mathematician," is dead. For forty-four years he was teacher of mathe-

matics in the Iowa College for the Blind at Vinton, Iowa. Professor Tannehill became blind when a young man.

Dr. Karl Seggel, a prominent ophthalmologist of Munich, was injured by an electric car in that city and died two days later. Dr. Seggel was prominent also as a military surgeon, and was a co-worker on the staffs of the Archiv. für Augenheilkunde and the Munchener Medizinische Wochenschrift.

The Pennsylvania legislature has under consideration a bill to appropriate \$22,000 for a trachoma hospital at Marcus Hook, the state quarantine station. The appropriation is to be divided, \$10,000 being devoted to providing a hospital for temporary treatment, \$10,000 for an emergency fund, and \$2,000 for a resident ophthalmologist.

Dr. Howard B. Hills of Youngstown, Ohio, has been elected president of an organization known as the Youngstown Post-graduate School of Medicine and Surgery. Dr. Hills has charge of the work in eye, ear, nose and throat. The school is for the purpose of study and to enable the members to obtain material for operative surgery and dissections.

Dr. Geo. E. de Schweinitz, professor of ophthalmology at the University of Pennsylvania, Philadelphia, represented the sub-committee on medical curriculum for eye, ear, nose and throat at the meeting of the Council on Medical Education of the American Medical Association, held in Chicago, April 5. One hundred and forty hours were allotted to this section in the new curriculum.

CHICAGO EYE CLINICS.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A.M.	Richard S. Pattillo (P.-G.) J. F. Burkholder (E. E. N. T.)	G. W. Mahoney (Poli.) *Geo. F. Suker (P.-G.) Oliver Tydings (E. E. N. T.)	E. J. Brown (E. E. N. T.)	G. W. Mahoney (Poli.) Richard S. Pattillo (P.-G.) J. F. Burkholder (E. E. N. T.)	Richard S. Pattillo (P.-G.) Oliver Tydings (E. E. N. T.)	G. W. Mahoney (Poli.) E. J. Brown (E. E. N. T.)
10 A.M.	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	E. J. Brown (E. E. N. T.)	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)
11 A.M.	Brown Pusey, N.W.U. Every day, 10-12 A.M.					
	H. W. Woodruff (E. E. N. T.)	A. G. Wipern (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	A. G. Wipern (E. E. N. T.)	H. W. Woodruff (E. E. N. T.)	A. G. Wipern (E. E. N. T.)
1 P.M.		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)
2 P.M.	E. V. L. Brown (Inf.) E. J. Gardner (E. E. N. T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) D. A. Payne (Ills. Med.) N. E. Remmen (Inf.) J. F. A. Phillips (Inf.) Emily Selby (Inf.) *Wm. H. Wilder (Rush) *H. A. Young (Inf.) *N. A. Young (Inf.) Francis Lane (Rush) J. B. Loring (P. & S.) E. K. Findlay (P. & S.) *Oscar Dodd (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Thos. Faith (E. E. N. T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) F. A. Phillips (Inf.) H. B. Williams (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) W. A. Fisher (E. E. N. T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) *H. W. Woodruff (Inf.) N. A. Young (Inf.) J. B. Loring (P. & S.) E. K. Findlay (P. & S.) *Oscar Dodd (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) *Frank Allport (St. Luke's) *Frank Brawley (St. Luke's) Thos. Faith (E. E. N. T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) E. J. Gardner (E. E. N. T.) *Paul Guilford (St. Luke's) *Casey Wood (St. Luke's) *T. A. Woodruff (St. Luke's) J. B. Loring (Inf.) D. A. Payne (Ills. Med.) F. A. Phillips (Inf.) *Wm. H. Wilder (Inf.) H. B. Williams (Inf.) Francis Lane (Rush) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) H. W. Woodruff (Inf.) N. A. Young (Inf.) J. B. Loring (P. & S.) E. K. Findlay (P. & S.) *Oscar Dodd (Inf.) Thos. Faith (E. E. N. T.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) E. K. Findlay (Inf.) W. A. Fisher (E. E. N. T.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) D. A. Payne (Ills. Med.) F. A. Phillips (Inf.) *Wm. H. Wilder (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)
3 P.M.	W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)	H. H. Brown (Ills. Med.)	*J. E. Harper (P. & S.) W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)		W. Allen Barr (C.C.S.)	Geo. F. Suker (P.-G.)
4 P.M.	W. F. Coleman (P.-G.)	C. W. Hawley (P.-G.)	G. F. Suker (P.-G.)	C. W. Hawley (P.-G.)	W. F. Coleman (P.-G.) Brown Pusey (County)	

*Special operative eye clinics.

ABBREVIATIONS:

C. C. S.: Chicago Clinical School, 819 W. Harrison Street.	County: Cook County Hospital, W. Ills. Med.: Illinois Medical College, 182 Washington Blvd.	Pol.: Chicago Policlinic and Hospi- tal, 174 E. Chicago Avenue.	Rush: Rush Medical College, W. Harrison and Wood Streets.
E. E. N. T.: Chicago Eye, Ear, Nose and Throat College, Washington Franklin Streets. Clinics all day.	Inf.: Illinois Charitable Eye and Ear Infirmary, Peoria and Adams Streets.	P.-G.: Post-Graduate Medical School of Chicago, 2400 Dearborn Street.	St. Luke's: St. Luke's Hospital, 1416 Indiana Avenue.
		N. W. U.: Northwestern University, 2481 Dearborn Street.	

THE OPHTHALMIC RECORD

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EXOPHORIA, ITS SYMPTOMS, SIGNIFICANCE AND TREATMENT.*

BY OSCAR WILKINSON, A. M., M. D.
WASHINGTON.

An apology might be demanded for offering a paper on such a threadbare subject were it not for the fact that some of the symptoms and their significance are entirely overlooked by many of our best men.

Exophoria consists in a tendency to a deviation outwards of one eye. Where there is an entire deviation the condition is known as exotropia. The condition was first scientifically described by Stevens of New York.

Symptoms.—The symptoms of exophoria may be those of simple eyestrain which may be manifested by pain in the eyeball and burning or itching of the eye-lids, and pain in the temples; but one of the most constant and most severe symptoms and the one most frequently overlooked is a *basilar* headache. This symptom is so constant in this condition that for years I have been in the habit of making a note, marking "exophoria" in taking the history of those patients who complain especially of eye pain associated with a more or less constant headache in the base of the brain. That strain upon the intrinsic and extrinsic ocular muscles is one of the most frequent causes of headache has for a long time been known and accepted by the profession; but I have not been able to note that others have observed that exophoria acts as a causal factor in producing headaches at the base of the brain. I be-

*Read before the Medical Society, Washington, D. C., March 17, 1909.

lieve that, outside of syphilis, exophoria associated with refractive errors causes more of that character of chronic headache than all the other conditions combined. This, I do not believe is generally known or appreciated.

Exophoria is usually associated with refractive errors which should be accurately corrected. Many of the symptoms disappear after this is done. Some claim that all heterophorias are relieved after a careful correction of the refractive error; but I have seen exceedingly few cases of exophoria decrease even after the use of correcting lenses for a long time; in fact, I have yet to see my first case of exophoria materially decrease after the use of correcting lenses alone.

In those cases in which some authors claim to have obtained such results I am constrained to believe that they failed to make their first examination with sufficient care or under varying circumstances, i. e., when the eyes were tired, and again after a night's rest. I invariably examine my patients both before and after a day's work.

Its Significance.—Exophoria, in my opinion, causes more nervous breakdowns than any other single lesion of the eye. I would like to be clearly understood on this point. I do not mean to say that exophoria causes more symptoms of eyestrain than astigmatism or hypermetropia does as it is not nearly so common; what I do mean to say is that we see more cases of loss of nerve power and nerve force from exophoria than from other eye conditions. In hypermetropia and astigmatism we have eyestrain, and often so severe as to cause disability, and render the patient, temporarily and at times more or less permanently, unable to do his work; but I have failed to see so many cases of severe neurasthenia in which I could attribute the condition directly or solely to astigmatism or hypermetropia.

I have had a number of patients suffering with exophoria who had been disabled for months and even for years, and had been treated by several nerve specialists for neurasthenic conditions, who had been invariably relieved by remedying their exophoria.

The extent of these nervous symptoms have in some cases been so severe as to border on insanity. A few years ago I reported some of these cases in the "Virginia Medical Semi-Monthly"; and since then I have had several of the same type of which the following case is an illustration:

Mr. B., medical student, was endeavoring to take a medical

course in the George Washington University; at the same time he was working seven or eight hours a day in the government service. He developed neurasthenic symptoms and his condition became so serious that it appeared he was about to lose his mind. He was obliged to abandon both work and study for a month or six weeks and go to the country. On returning to the city he endeavored to take up his work, but his old symptoms returned. One of my friends sent him to me on account of basilar headaches. I found him suffering with a compound astigmatism associated with five degrees of exophoria. He was wearing lenses which corrected his astigmatism and hypermetropia, but these did not relieve his headaches nor did they enable him to do his work. I corrected his exophoria, at the same time correcting his refractive error and gave him exercise to strengthen his internal muscle. He was very anxious about his condition; and I told him that by not overworking himself at the start he would be able gradually to do the full amount of work. He returned to work and to school and passed his examinations; afterwards he went to another school, graduated with honors, and is now practising medicine. He has had no recurrence of his nervous trouble. I could report a number of such cases, but I consider one sufficient to illustrate the character of cases which are not usually recognized as suffering from this condition.

Treatment.—The treatment of exophoria may be divided into three classes: First, correction or partial correction of the exophoria by means of decentering lenses or prisms; second, the exercise of the internal rectus muscle; third, operative treatment.

In prescribing lenses I have failed to obtain very marked benefit from decentering of lenses; and in cases of from one to eight degrees of exophoria the use of prisms, base in, is advised, correction from one-half to two-thirds of the deviation. In low degrees full correction is often best, while in the higher degrees, on account of the thickness of the prisms, not more than one-half of the deviation can be corrected. Many cases with more than eight degrees of deviation will not yield to treatment by means of prisms and exercise; and operative treatment is necessary.

Cases of from one to four degrees of deviation are those which usually have the greatest amount of headache, and are invariably relieved by prismatic correction combined with the correction of any refractive defect.

The exercise of the ocular muscle is usually conducted by means of prisms held before the eyes, with their bases out, while one

looks at a candle or a light twenty feet or more distant. This is placed in front of the eye and moved several times in a minute. This process is continued for from five to ten minutes two or three times a day.

A very simple and effective exercise is to have the patient hold a card with a small spot on it before the eyes, and while looking at the spot the card is held at arms' length from the eyes and slowly brought closer to them. As the card approaches to within one to three inches of the nose the spot on it will be seen double. The card should then be held at arms' length and again brought closer to the nose until the spot is again seen double. This should be continued for from five to ten minutes. A convenient method is to make a mark on the thumbnail and have the patient look at this instead of using a card.

Another method which I have found very convenient is the use of the Worth amblyoscope. This instrument is so well known that a description here is not necessary. I must say that I have not experienced the beneficial results from the exercise of the internal ocular muscle that others claim to have obtained, unless the patient continues the exercise for several months.

Operative Treatment.—The operative phase of the treatment of exophoria is still a disputed question. Some never operate in these cases while others do so on a large percentage of their patients with an excess of six degrees of deviation. I first correct the error of refraction, and if more relief is needed I use prismatic lenses and exercise. If the deviation is above five degrees and is increased by the use of prisms, and the patient is not relieved I advise operative treatment.

There are but two operations to be considered; one, an advancement of the weaker muscle, the other, a tenotomy or partial tenotomy of the external rectus of one eye or a tenotomy of the external with advancement of the internal rectus. In low degrees of deviation I invariably advise the advancement operation which is the only one to be considered in a deviation of less than six degrees.

The objections to the advancement operation is that it is more tedious and takes a longer time than the tenotomy or partial tenotomy, and the site of the operation is sometimes red for months. Partial tenotomy is rather a questionable procedure as no one can tell what the ultimate results will be: it has been rather a disappointment in my hands.

When the deviation is above eight degrees, and relief is not ob-

tained by other and simpler means, a tenotomy of one external rectus is advisable. Some operators seem to have a horror of a tenotomy of any ocular muscle; but I have never had an occasion to regret doing a tenotomy of an external rectus in a patient of eight degrees or more of external deviation.

In patient above thirty years I have always found this method of correction of eight to ten degrees satisfactory. I would certainly hesitate to do a tenotomy on a young person unless the deviation was more than ten degrees.

When tenotomy is done close to the eyeball and where a little of Tenon's capsule is cut we usually get a correction of from five to ten degrees. In younger subjects, as a rule, we get more immediate results, however, as the muscle re-attaches this amount is reduced. Fortunately, the severer symptoms of exophoria are seldom seen in children, hence operative procedure in the young is the exception. In patients with from twelve to twenty degrees of exophoria associated at times with diplopia, it is often necessary to tenotomize one muscle and advance the opposite internus, especially if the patient is above thirty. The one disadvantage in such apparently radical procedure is that for a time the patient is liable to have diplopia in the extreme right and left fields; this, however, is usually overcome in a few months.

SOME EUROPEAN EYE CLINICS AND THEIR CLINICAL OPPORTUNITIES—VIENNA, LONDON, UTRECHT AND PARIS.

(Concluded.)

BY ALEXANDER P. HORWITZ, M. D.

CHICAGO.

Associate Ophthalmic Surgeon, West Side Dispensary United Hebrew Charities,
Chicago; Late Voluntary Assistant in Prof. Fuchs' Klinik, Allgemeines
Krankenhaus, Vienna; ex-Secretary of the American Medical Association
of Vienna; Mitglied der "Ophthalmologischen Gesellschaft in Wien," etc.

Vienna.

Notwithstanding the opportunities for work offered in the other European cities, Vienna is now, as formerly, the only place where we can obtain thorough and systematic instruction in the various branches of ophthalmology. Her clinics are large and, because of the eminence of the men conducting them, they prac-

tically drain central Europe. For this reason a great variety of cases are presented and ordinarily rare cases become commonplace. The fact that these clinics are a part of the large University of Vienna lends an especial impetus to the thoroughness in teaching and arouses in each instructor the desire to keep his course up to the proper standard. This friendly rivalry leads to the most gratifying results.

The largest and at the same time the most popular clinic is that of Hofrat Prof. Ernst Fuchs, the Second Eye Clinic of the Allgemeines Krankenhaus. It occupies the second floor of the Alserstrasse side of the Krankenhaus and consists of four large wards with a total of about one hundred beds, an amphitheater, outpatient treatment room, waiting and examination room, operating rooms, laboratories, and Prof. Fuchs' private room. Over 24,000 new patients are examined and treated yearly and, as each patient is registered only once, this number makes this clinic the largest on the continent. The number of operative cases per day is comparatively large and consists usually of three to six cataracts, two to three iridectomies, three to four muscle operations, one to three tear sac extirpations, a variable number of eye injury cases with their various complications, operations for lid abnormalities, etc. Each day between ten and fifteen operations can be seen.

For the last twenty-two years Professor Fuchs, with his kindly but firm sway, has been the heart and soul of this clinic. He is the idol of his assistants, who strive to make their work equal to the high standard which he has set.

The work of the clinic is carried out according to schedule, and with military precision. Each ward is under the direct supervision of one of the regular assistants who, in turn, has under him a voluntary assistant. The latter does the actual work, such as examination of patients on entering and leaving, the writing of histories, giving of treatments, and assisting in operations. Later, according to his adaptability, he is allowed to operate on the cases from his own ward and from the out-patient clinic.

The day's work begins at 8 a. m., when the morning rounds are made and all cases inspected and treated. At 9 a. m. Professor Fuchs, surrounded by the assistants, inspects first the new and severer hospital cases, then those ready to be discharged, and finally, all new and as yet unclassified cases. The latter are separated by him into various classes: (1) Those requiring hospital attention; (2) those of special interest for clinical demonstration;

(3) those for refraction and fundus examination: (4) those for treatment in the ambulatorium. The trachoma cases are all treated between 7:30 and 8:30 a. m. by the voluntary assistants in rotation, and are kept entirely separated from the rest of the patients. The number varies between fifty and seventy daily.

From 10:15 to 11:15 a. m., except Saturdays, Professor Fuchs holds the university clinic. This consists in the presentation and demonstration of the most interesting of the clinic and hospital patients. These are first examined by Professor Fuchs and then, while he is developing the subject, a voluntary assistant takes the patient in charge and demonstrates him to small sections of students throughout the amphitheater. This method, while it has the advantage of more individual instruction, has also many disadvantages. There are usually four patients being demonstrated at the same time, so that the voices of the assistants and the movements of the students to places of vantage, necessarily interfere with anyone trying to follow the words of Professor Fuchs. One, however, soon gets accustomed to this and finds a seat where he is less likely to be disturbed and can follow unhindered the words of the greatest clinician in the world in this specialty. After this lecture Professor Fuchs goes into the operating room, where he performs six to ten operations and then usually retires into his private room to examine some pathological specimens, for he is an enthusiastic pathologist and every specimen secured in his clinic is thoroughly worked out and comes to him for final inspection. The operating is continued by First Assistant Dr. Meller and the various other assistants and voluntary assistants until all the material is exhausted, which is usually after 1 o'clock. Saturdays from 9 to 10 a. m. Professor Fuchs demonstrates, by means of the stereopticon, the pathology of the cases seen during the week, a most valuable addition to the other pathological work.

Special courses in the various branches of ophthalmology are given by the assistants of this clinic, and these courses are considered the best in Vienna as regards thoroughness in instruction and wealth of material. They can be had in either English or German. First Assistant Dr. Meller's courses are the most popular, and the lists are filled almost as soon as they are posted. He holds some of the following classes each month:

1. Operative course, duration 20 hours, 6 places, cost 100 Kr.
2. Ophthalmoscopic course, duration 20 hours, 10 places, cost, 60 Kr.

3. External diseases, duration 20 hours, 10 places, cost, 60 kr.

4. Diseases of the eye muscles, duration 15 hours, 10 places, cost, 60 Kr.

In the operative course extra-ocular operations are practiced on the cadaver, while intra-ocular operations are performed on sheep's eyes. This is the most popular of any of the courses, and must be spoken for immediately after arriving in Vienna.

Second Assistant Dr. Bergmeister and Third Assistant Dr. Terc also give courses in ophthalmoscopy and in external eye diseases. Dr. Sachs gives one in ophthalmoscopy. The duration, number of places and cost in the ophthalmoscopy courses are the same as Dr. Meller's. The cost of the external eye diseases courses is 50 kronen. At present the American students are reducing the number of men in a course to six, at the same time slightly advancing the price per man. On account of the great advantage of this system it is to be hoped that it will become permanent. Dr. Meller's external eye diseases course has recently been made a so-called book course, i. e., a man desiring this work must register his name in a book as soon after his arrival in Vienna as possible, and his eligibility to be in the course depends upon precedence of registration in this book. This gives the men who have been in Vienna the longest, the preference.

A course in bacteriology of the eye can be obtained from Dr. Hanke. While this course is not conducted with the thoroughness it deserves, it is the only one in this special line given in Vienna and should under all circumstances be taken. In the latter part of the course patients from Professor Fuchs' clinic are used for clinical practice in bacteriological diagnosis. It may be of interest to mention that Dr. Hanke's pyocyaneus-like bacillus has been repeatedly demonstrated at this clinic to be pathognomonic for ring abscess of the cornea. The duration of this course is 20 hours. There are four places, and the cost is 70 Kr.

Histology and pathology of the eye can best be studied under Professor Salzmann of Professor Fuchs' clinic. This course lasts three months, beginning in September and January, is limited to eight students, and cost 100 Kr. There is usually one English and one German class running at the same time. Professor Salzmann is one of the few who teach not so much for the fee as for the love of teaching a subject of which he is master. Advanced pathology can be continued under Professor Salzmann. Professor Wintersteiner, whose courses are not as popular as formerly—it may be

because they are given only in German—gives a pathological course of six weeks' duration for 100 Kr. His specimens are more complete than those of Professor Salzmann, but his teaching lacks the thoroughness of the latter and, therefore, previous pathological work is necessary in order to derive any marked benefit.

Second only to those of Klinik Fuchs are the courses given in the late Professor Schnabel's clinic in the V. Hof, by First Assistant Dr. Lauber. This clinic, with its 6,000 cases yearly, furnishes many interesting cases, and the material is used to such advantage by Dr. Lauber that there are always sufficient students to warrant a new course each month. Many students while awaiting their turn in Dr. Meller's more popular courses, utilize their time advantageously by attending Dr. Lauber's classes. His courses are practically the same as those given by Dr. Meller; his fees are, however, slightly less. At the present writing this clinic is without a chief. Professor Elschnig, formerly of this clinic, but now of Prag, was considered the logical successor of Professor Schnabel, but his appointment is meeting with some opposition. I hear that Professor Axenfeld of Freiburg has refused to consider the appointment and that Professor Uhthoff of Breslau has been asked. Should Professor Elschnig come to Vienna, it is possible that Professor Salzmann will go to Prag, a fitting recognition of his long, conscientious and faithful work.

In addition to the foregoing courses, which are mostly all under the control of the American Medical Association of Vienna, and are those enumerated in their "Course Book," there are other elective courses which are also a part of the regular university work, and which are open to visiting students. These courses are all in German, and are generally overlooked by the American students, as they are listed only in the catalogue of the university. Among these may be mentioned:

1. At the Polyclinic on Marianengasse—courses by Professor Reus and Professor Klein.

2. At the Franz Josef Ambulatorium—Ophthalmoscopy and Refraction, by Dr. Kun; 1 month, 50 Kr.

3. Allgemeines Krankenhaus*—Professor Salzmann, Selected Chapter of Ophthalmology, determined by the students; 24 hours, cost, 6.30 Kr.

To secure these courses it is necessary that at least five students register for them at the university at the beginning of the

* (Etc. See Semester catalogue.)

semester. Anatomy should be studied under Professor Tandler at the Anatomical Institute. All students who have done at least three months' work are eligible to a certificate which is given out by the Dean of the Medical Faculty and is signed by the various instructors under whom they have worked. In order to obtain this, however, the visiting student should, as soon as possible after his arrival, enroll himself at the Quaestur of the University (in the "Universitäts Gebäude" at "Universitäts Strasse" and the "Ring"), where he also pays for his courses and receives therefor receipts which must be shown when he applies for his certificate. This certificate was devised by the medical faculty at the request of the members of the American Medical Association of Vienna in 1907 during my secretaryship, and has entirely replaced the old certificate which the students bought at the engraver's. The new certificate reads, "The University of Vienna," and is signed by the dean of the medical faculty.

The headquarters of the American Medical Association of Vienna are in the "Cafe zur Klinik," corner Spitalstrasse and Lazarettgasse, opposite the Pathological Institute. Here the new courses are posted for signing. Here are also the books for the aforementioned "book courses," and a book containing the addresses of vacant rooms and of boarding places. During the day and early evening there are always some American students in this cafe, and they are always willing to assist the newcomer, either in selecting a room or in arranging his courses. The medical association publishes a booklet which gives the duration and cost of courses in the branches of medicine usually followed by the American students. This can be obtained by remitting 25 cents to the secretary in Vienna at the above address. The association holds meetings every Friday evening, when papers are read by the various university teachers.

Living expenses in Vienna are about the same as here; good pension can be had from \$30 to \$40 per month. Total expenses average \$100 to \$150, depending upon the number and cost of courses. The latter are given throughout the year except in August. July and December are poor months and should if possible be avoided.

London.

The various London eye clinics have for a long time had the reputation of offering special advantages to those desiring such work, but opinions as to their real merit differ as widely as do

the different classes of oculists who visit them. The clinical material is large, but little attempt is made at utilizing it for the purpose of instruction beyond a mere superficial explanation and even this is entirely missed if one is not in close proximity to the speaker or has an hyperacuteness of hearing.

The Royal London Ophthalmic Hospital, better known as Moorfields, is the first special eye hospital established in the United Kingdom, and is one of the largest polyclinics in Europe, having about 45,000 "attendances" per year. The hospital has 138 beds and is located on Old City Road, about one block to the left of the junction of City Road and Old Street, which can be reached by electric cars or busses from Oxford Street or Theobalds Road.

The work at Moorfields is divided into two classes, clinics and courses. The out-patient department or polyclinic is open from 9 a. m. until about 1 p. m. In-patients are seen and operations are performed daily at about 10 a. m.

The members of the surgical staff attend in rotation, as follows: Mondays and Thursdays, Mr. M. Lang, Mr. T. Collins, Mr. A. Lawson, Mr. C. Worth; Tuesdays and Fridays, Mr. Morton, Mr. Spicer, Mr. Flemming, Mr. Marshall; Wednesdays and Saturdays, Mr. Marcus Gunn, Mr. Lawford, Mr. Fisher, Mr. Parsons.

By this arrangement four clinics are held at the same time. The usual procedure of the students is to sign for clinical work with two of the surgeons and thus do regular clinical work four mornings out of the week, leaving two mornings free for watching the other men and visiting operations. The latter are not numerous considering the large clinical material, and things move so slowly that three to five operations is considered a good morning's work.

The real value of the out-patient department is the opportunity it offers for doing refraction—especially retinoscopy. The student can examine a case as long and as frequently as he desires. This is found in none of the cities on the continent.

To secure work as junior assistant in the out-patient department, application must be made fifteen days before the first of January, April, July and October, when the appointments, which require a service of six months, are made. The fee for this is \$15. If one chooses to stay longer a "Perpetual Ticket" is issued for \$25.00. This includes hospital lectures but not class work in the

courses. Certificates for work done are given at the end of the six months' service.

SPECIAL COURSES.

Special courses lasting about two months and beginning in October, November and May are given by members of the surgical staff. The number of lectures in each course is too few to admit of anything but a very superficial view of the subject, the whole of which is intended to be covered and, therefore, can be recommended only to beginners.

The following synopsis of the lectures and demonstrations, taken from the prospectus of the hospital, will give a good idea as to their relative value:

1. The Use of the Ophthalmoscope—Twelve lectures and demonstrations; number in class limited; fee, \$15.00.

2. Errors of Refraction—Five lectures and illustrative cases by Mr. Marshall; fee, \$5.00.

3. External Diseases of the Eye—Seven demonstrations on selected cases, Messrs. Morton, Spicer, Lang and Lawson; fee, \$10.00.

4. Pathology of the Eye—Six lectures and lantern demonstrations, Mr. J. Herbert Parsons; fee, \$5.00.

5. Practical Pathology—Preparation and examination of microscopic sections, by curator; duration, one month; fee, \$5.00.

6. Surgical Anatomy of the Eye—Three lectures and lantern slide demonstrations, Mr. Treacher Collins; fee, \$5.00.

7. Motor Anomalies—Four lectures, Mr. Worth; fee, \$5.00.

8. Examination of the Eye—Four demonstrations, Mr. Marshall; fee, \$5.00.

9. Operative surgery—Once per week, Mr. Fisher and Mr. Lawson; fee, \$15.00.

10. Clinical Lectures—Twelve lectures by the various gentlemen on the staff.

11. Classes for X-Ray work are held from time to time.

A composition fee of \$50.00 will entitle students of the hospital to a "Perpetual Ticket," and will admit them to all the above lectures and demonstrations, except the classes on practical pathology, operative surgery and X-ray work.

All fees are paid to the secretary of the hospital, from whom any further information can be obtained.

Of these courses the first one mentioned, i. e., the one on ophthalmoscopy is, in the opinion of those who have had them, by

far the best. The various ophthalmoscopic findings, normal and pathological variations, are taken up in systematic order, and the members of the staff who give it leave nothing untried to make it one of the best in Europe. The number of students is usually limited to twenty, and the list is often filled two months before the course begins.

Another hospital and one which has the advantage of holding its clinic in the afternoon is the Royal Westminster Ophthalmic Hospital, King William street, Charing Cross, West Chapel. This hospital has recently undergone extensive structural alterations, and is now brought up to the highest standard of modern requirements. It is in the center of London, most accessible from all parts, contains forty beds, and has a very large out-patient clinic. About 30,000 attendances were made in 1906.

The staff, consisting of Drs. Hartridge, Rall, Dodd, Grimsdale, McMullen and Brewerton, attend twice a week in rotation, so that two members are present every afternoon. The work in the out-patient department is begun at 1 p. m., and usually terminates about 4:30 p. m., at which hour, during the sessions, classes in the various parts of ophthalmology are held by the staff.

Clinical assistants are appointed four times a year, for a period of not less than six months.

The fees for six months' attendance at the hospital are £3 3s.; this includes one complete course of all the lectures and demonstrations, with exception of the class in operative surgery, for which a fee of £1 1s. is charged. A fee of £5 5s. entitles the student to the privileges of a perpetual pupil.

For periods shorter than six months, special fees are charged.

Among the smaller hospitals, which also have the advantage of having fewer students and therefore greater opportunities for individual work, may be mentioned the following:

Central London Ophthalmic Hospital—Grays Inn Road. Afternoon clinics. Yearly number of patients, 30,000. The attendings physicians are: Dr. Hancock, Wednesdays and Saturdays; Dr. E. Clark, Tuesdays and Fridays. Dr. Morgan gives a good course in pathology.

South London Hospital—Near Waterloo Station. Morning and afternoon clinics.

London Eye Hospital—London Road, E. C. Sir William Collins operates Monday and Wednesday afternoons.

London General Hospital—Whitechapel Road. Dr. Lister daily, 9 to 2.

While in London one should not fail to visit the museum of the Royal College of Surgeons in Lincolns Inn Fields. Visiting physicians are admitted on Monday, Tuesday, Wednesday and Thursday, 10 to 4, without any special form of introduction. Although many of the eye specimens have deteriorated much during the last few years, there are still many in excellent condition. The anatomical collection is composed of masterpieces in dissection and are alone worthy of at least one visit.

Those desiring to study the neurology of the eye can do so at the National Hospital for the Paralyzed and Epileptic in Queens Square, near Russell Square, where Risien Russel is continuing the good work of Gowers. He holds a clinic every Tuesday from 1:30 p. m., and one must be there early in order to secure a favorable seat as this clinic is very popular.

Living Expenses: For either a short or long stay, a pension is to be recommended on account of its cheapness and convenience. Those most frequented are near Bedford Place or Russell Square, where rooms, with or without board, can be found in almost every other house. The average price for room and board (three meals) is thirty shillings per week. Guilford House, Guilford street and Russell Square, is one of these. A somewhat cheaper and fairly good family hotel is Linden Hall, 111 Gower street, where whole pension can be had for twenty-five shillings per week. These places are somewhat remote from the eye clinics, but must be so on account of the unfavorable location of most of the latter. They are, however, near enough to all parts, clinics, theaters, museums, and business sections, so as not to cause any appreciable degree of inconvenience.

Utrecht.

During my return from London to Vienna, I took the opportunity of paying a short visit to the hospital and clinic of Professor Snellen, the originator of our modern subjective method of refraction. Professor Snellen has now retired from active work and his son has succeeded him as chief of the hospital. This is a new and entirely modern structure and was erected as a monument to Professor Donders, the pioneer of the newer ocular therapeutics and the founder of the first eye hospital in Holland. The hospital is located at 49 Donder street, and can be easily reached from the railroad station by electric tramway. The polyclinic is opened at 8 a. m., and the operations begin at 10 a. m. The number of patients treated in 1906 was 7,213, of which 510 were

operative. Over 6,000 refractions were made. These figures speak well for the popularity of this clinic, as the city is small and its main rival, Amsterdam, is quite near. The difficulty of the Dutch language is an obstacle for clinical work, but on account of its historical associations, this clinic is worthy of at least a short visit.

Paris.

The writer was not surprised to meet here a goodly number of his former acquaintances from other European cities, the reason being, in part, the steadily increasing popularity of the French clinics. Although no special courses of instruction outside of the regular university work are offered, the large number of good clinics and hospitals and the friendly reception by the various staffs are having the effect of drawing the American students thither—most of them staying, however, for only a very short time.

A knowledge of French is absolutely necessary and for those who are thus advantageously equipped, the Parisian eye clinics offer a new and open field for work. This must, however, be confined almost entirely to bacteriological and pathological research. Permission to work in the laboratories is readily obtained, but the prospective student must bear in mind that absolutely no attempt at instruction is made, although information and advice is readily given whenever required.

The newest, and after Professor Eversbusche's, probably the finest eye hospital visited, is the "Fondation Ophthalmologique Adolph de Rothschild." It is located at the junction of Rue Manin and Rue Priestley, opposite the Parc des Buttes-Chaumont. The building is constructed of cement, marble and red brick, is four stories in height, and consists of two wings at an acute angle to each other, the main entrance and reception rooms occupying a central portion. The side toward the park is reserved for children and female patients, while the other wing is used for male patients. To these wings are connected respectively, a septic and an operative pavilion. The rooms are all large, well lighted and perfectly ventilated. Ample space has been devoted to clinical examination rooms and laboratories of all descriptions. The equipment is ample and complete in every respect. The operating room is large, white tiled, and has a large north window. The septic pavilion contains one section for Trachoma and one for Gonorrheal Ophthalmia. The latter has a special section for Ophthalmia of the new-born—a large hall being for this purpose subdivided into

individual rooms by means of stained glass partitions. An innovation I noticed was that this glass was transparent at definite intervals with a removable stained glass cover on the outside, so that the nurse could inspect the room from the hallway and thus avoid entering and disturbing the patient. A large, beautifully planned garden and promenade for the use of the convalescents occupies the grounds in the rear.

Professor Trousseau, who is director of the hospital, operates here every Wednesday morning at 9 o'clock, and is assisted by Dr. Sulzer. The hospital can best be reached by taking the Metropolitan underground to Station d'Allemagne and walking about three blocks; also by street railways, St. Augustin-Cours de Vincennes, and Pantin-Opera, and the lines that go to Villette.

Professor de Lapersonne operates at the Hotel Dieu, 1 Place du Parvis Notre Dame, every Tuesday, Thursday and Saturday at 9 a. m. His chef de clinique is Dr. Monthus, to whom one's card should be sent. This clinic is very large and operative material is abundant. Its location near the Notre Dame cathedral makes it easy to find.

One of the best known and most popular ophthalmic surgeons in Paris is Professor Morax. His clinic is the Lariboisiere Hospital, 2 Rue Ambroise Paré, and is visited more than any of the others. It is here that bacteriological and pathological work can be most satisfactorily undertaken. Professor Morax operates daily at 9 a. m.

The largest hospital in Paris is the "Quinze-Vingts," 28 Rue Charenton. Here an operative clinic is held daily from 12:30 to 2 p. m. by Professors Trousseau, Kalt, Chevallereau and Valude.

Professor Darier can be seen daily from 2 to 5 p. m. in Rue Buffalt.

Lastly I must make mention of Professor Landolt's clinic, where many of the older American oculists have worked. His clinic is as large as formerly and still in the old place, 27 Andre des Arts. He can best be seen on Wednesdays and Saturdays, when he operates from 12 to 2. He always extends a cordial welcome to his American visitors.

Living Expenses: Living expenses in Paris vary to an enormous extent. Most of the students live in the Latin Quarter, near the university, where a room can be had for from \$5 to \$8 per month, and take their meals wherever convenient. In this way they get along nicely on about \$6 per week. For a short stay, pension from 8 francs up per day can be had. There are numerous

pensions near Place Glichy—a fair one is Richard's Family Hotel, 22 Rue Darcet. Hotels near the Opera have rooms from 4 francs up; meals average 3 to 4 francs.

CONCLUSION.

I have tried in these series of articles to adhere closely to my original purpose, to give a brief description of the various European eye clinics which I visited, noting only such facts as are of interest to those intending to study abroad and as much as possible omitting personal comment or criticism. I desire before closing to express my appreciation and thanks to the chiefs of the various clinics, whose uniform cordiality and courtesy far surpassed my fondest expectations. Especially do I wish to thank my former chef, Hofrat Prof. Ernst Fuchs, who so kindly made me a member of his official family, thus giving me all the advantages of his large clinic and the inestimable benefit of his own inspiring personality.

2419 INDIANA AVENUE.

STAPHYLOCOCCUS VACCINATION IN PHLYCTENULAR DISEASE.

BY H. GRADLE, M. D.

My reasons for the treatment to be described are founded on certain observations regarding the course of phlyctenular disease which have not received much attention in literature. I refer to the difference between the first attack of phlyctenules on the ocular conjunctiva or cornea and the later relapses. As a rule the earlier phlyctenules are ephemeral lesions lasting only some 8 to 10 days. In subsequent attacks phlyctenules are apt to last longer and change into more persistent lesions, such as phlyctenular pannus, indolent infiltrates in the cornea, patches of diffused keratitis and fascicular keratitis. On the sclera we are apt to see patches of episcleritis and sometimes even papular eruptions.

Clinical experience shows that phlyctenular disease only occurs in scrofulous subjects. It is doubtful whether there are exceptions to this rule. We can only say that scrofulous manifestations are in rare instances not pronounced. At the present day scrofula is pretty well recognized as identical with tuberculosis of lymph glands in childhood. As the other manifestations of scrofulosis are somewhat in proportion to the extent and size of the involved lymph glands it is very probable that when phlyctenular disease occurs in a child apparently not scrofular there is really a latent small tubercular focus in some glands not palpable to the finger.

There is, however, no clinical reason for believing that the phlyctenule itself is a tubercular lesion. Experiments by Leber and his assistants and by Stock to prove that phlyctenules may be produced by dead tubercle-bacilli or their toxins are not yet conclusive. According to Axenfeld and the later researches by Bach the contents of recent phlyctenules are usually sterile. But the earlier work of Bach confirmed by numerous other observers showed definitely that staphylococci very commonly invade secondarily the older phlyctenules.

The question occurred to me whether the persistence of phlyctenular lesions is not due in some instances to a secondary staphylococcus infection, and if so whether this could be combatted by vaccination according to Wright. I have therefore tried this method in instances of later phlyctenular attacks in which smears from the conjunctiva showed the presence of staphylococci. They were all recurrent instances which had lasted at least one week, but usually several weeks, without improvement under the usual local treatment, either carried out by myself or previously used by some competent colleague. I did not omit the usual treatment in all these instances because I thought the patient should have the benefit of all that could be done. But in all but one the usual local treatment had not shown any decisive influence up to the time.

I have tried staphylococcus vaccination in nine instances selected from private practice within the last two years and fulfilling the requirements above stated. In the first two I had the opsonic index taken by Dr. Mary Lincoln (Dr. McArthur and Hollister's Laboratory) and it was found slightly below par and raised by the injection. But since a rise in the index follows an injection almost invariably and does not necessarily coincide with clinical improvement I have not had this very painstaking opsonic work continued in the latter cases.

I do not think that a detailed report in print would teach the reader as much as the impression gained by the observer regarding the influence of this treatment. There was no sudden change in any case. Not one of them got well faster than cases of such involvement occasionally do. But in every instance the improvement, uncertain after the first vaccination, continued at a regular rate after the second or third at the most. From my previous experience I might have expected one or the other of these patients to have done as well as they did but I would not expect to see the same steady improvement and cure within two and a half to four weeks in nine cases of equal gravity under any former treatment.

As this treatment does not attack the first cause of phlyctenular disease it cannot be expected to prevent relapses. Two of my patients returned after months with a recurrence which yielded more promptly than previously on account of the earlier use of staphylococcus vaccination.

In the following case the decisive change under this treatment after the previous long persistence of the disease makes a more detailed report worth while.

Superficial Keratitis Yielding to Staphylococcus Vaccine.

Cora M., a girl of 10 years in fairly good health, had inflammation three years ago in both eyes. According to the description this seems to have been recurrent phlyctenules lasting about one year. Since one year the left eye has again been slightly sore and irritable without complete remission.

Right eye normal.

Left eye scarcely injected but irritability indicated by slight diminution of the lid aperture and vascularity on slight manipulation. There is an exceedingly delicate phlyctenular pannus limited to the limbus but nearly surrounding the whole cornea. The pupillary area slightly hazy but with almost normal surface luster. Vision reduced to 20/30. Trifling conjunctivitis especially marked in the upper fornix. Minimal mucous secretion containing scant staphylococci. There had been intermittent treatment apparently appropriate but without marked benefit.

For two weeks the usual local treatment was pursued viz.: atropin, yellow ointment, $\frac{1}{2}\%$ silver nitrate solution to the conjunctiva—without decisive influence. The last five days of the second week salicylate of sodium was given in the dose of 70 gr. daily without result. After two weeks of practical failure staphylococcus vaccination was adopted and repeated at intervals of 10 to 12 days. A slight but not permanent improvement was observed about the fifth day. Within six weeks, however, the eye had lost its irritability entirely and the lid aperture regained its normal size: The faintest corneal nebula remained, leaving the sight nearly 20/20. The recovery was verified after three months.

The scant literature on staphylococcic vaccination in eye disease is almost wholly confined to a few articles in the *Ophthalmoscope* for 1908. The only reference to phlyctenules is an incomplete observation by G. Mackay (Dec., 1908) and a larger series of observations by St. Mayo (Aug., 1908). His detailed reports are suggestive of benefit but not convincing.

THE DIAGNOSIS OF SYPHILITIC EYE LESIONS BY MEANS OF THE SPIROCHAETE PALLIDA AND THE SERUM REACTION OF WASSERMANN.

BY B. C. CORBUS, M. D.

AND

FREDERICK G. HARRIS, M. D.

Adjunct Professor of Dermatology, College of Physician and Surgeons, Medical
Department, University of Illinois.

With the demonstration of Metschnikoff and Roux in 1903 that the higher apes could be inoculated with syphilis, it immediately became apparent, that here at last we had an additional way of studying this universal disease.

These observers showed, that the chimpanzee was the most easily inoculated and that this susceptibility decreased as one descended in the scale of the monkey kingdom until the ordinary ring-tailed monkey could only be inoculated in certain selected areas, notably the eye-brows, and further that the rabbit, dog and sheep could also be inoculated in certain selected areas, but the disease in these animals was not followed by any secondary manifestations.

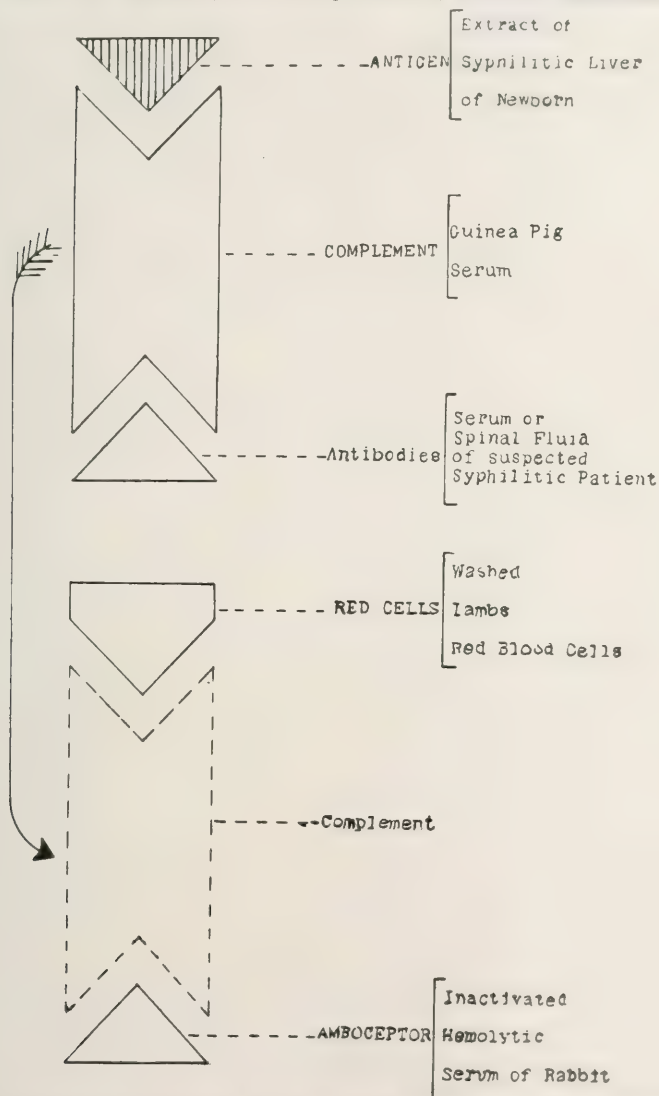
Stimulated by the work of Metschnikoff, Roux and Siegel, Schaudinn and Hoffman set to work to discover if possible, the cause of syphilis and in 1905 announced to the world the *Spirochæte Pallida* as the etiologic factor of syphilis. We are willing to admit that methods of cultivating this organism up to the present time have not been successful, but inoculation and reinoculations have been carried on through 42 consecutive monkeys, and further, the anterior chamber of an eye² of a rabbit has been inoculated with the *Spirochæte* and from here monkeys have been inoculated and the organisms reclaimed from this source.

With these investigations comes an enlightenment in the pathology of syphilis.

The initial lesion, no matter where situated whether genital or extragenital represents the first known collection of *Spirochæte*. After a certain period, varying from two to four weeks, these organisms leave the local focus and advance throughout the host. Systemic invasion has taken place, and the manifestations of the secondary lesions whether cutaneous or visceral are all characterized by collections of *Spirochæte*. This is equally true of the tertiary lesions, so we see that the organism itself is directly responsible for the pathological changes.

With this knowledge, our next most important step is to get rid of this organism by commencing treatment before it has invaded the system.

With the discovery of the Spirochæte, came its demonstration



with the staining method, which at first was more or less successful in skilled hands, but the demand for a simpler and more reliable method, led Reichert, the instrument maker of Vienna, to reintroduce the Dark Ground Illuminator.

Here we have a method, which is extremely simple, the technique of which can be mastered by the average physician.

During the past eighteen months, we have examined some two hundred cases. These have been confined to primary lesions on the penis, hands and lips and secondary lesions comprising condylomata, mucous patches, papules and enlarged inguinal glands.

In looking over Alfred Fournier's collection of 647 chancres of extragenital origin, we find only seven cases of chancre of the eyelid or a little over 1%, he adds however, that chancres of this origin are frequently unrecognized which may account in a measure for the small per cent. With our present methods of diagnosis it should not be difficult to diagnose these conditions.

Numerous English and American Ophthalmologists lay considerable stress on the fact that the Spirochæte are found in apparently healthy eyes of fœtuses and infants who have died from congenital syphilis; this is not at all surprising when we realize that the fœtal circulation is fairly alive with the organisms and that they are easily demonstrated in every organ, particularly in those organs where there is an abundant blood supply, as for example: the choroid coat of the eye.

Zur Nedden³ demonstrated the Spirochæte Pallida in the aqueous humor of a case of acute syphilitic iritis. Stephenson⁴ found the spirochæte in the aqueous humor of a woman with secondary syphilis. For obtaining the Spirochæte in this class of cases these men recommend the puncture of the anterior chamber. In the light of our modern investigations, the Wasserman test replaces this procedure.

Kowalewski⁵ reports a case of an individual who was treated for an inflammation of both eyes. Suddenly he developed an ulcer of the lower left eyelid in which Spirochæte was found. This was controlled by the Wasserman reaction which was positive.

Hanford McKee⁶ reports the finding of the Spirochæte in a mucus patch on the palpebral conjunctiva of a woman suffering from secondary lues.

Spirochæte have been found in Keratomalacia by numerous observers.⁷ Some of these cases were of doubtful syphilitic origin; as Spirochæte are found in all cases of gangrene it is questionable whether those were the Spirochæte Pallida.

From the preceding, we would be led to presume that primary and secondary lesions of the eye are extremely rare. This in a measure is true, but it is highly probable that these conditions have

been overlooked on account of insufficient means for diagnosis.

With the aid of the Dark Ground Illuminator, we have a rapid, reliable and simple method of differentiating these ulcers and as a further means of diagnosing syphilitic eye lesions, we have the serum test of Wasserman. Neisser and Bruck.⁸

The Wasserman test depends upon the discovery of Bordet and Gengou which is as follows:

That bacteria or their extracts will unite with their corresponding antibodies by *means of complement and fix it*.

For the performance of this test, five factors are necessary. Namely:

- | | |
|----------------|----------------|
| 1. Antigen. | 5. Red Cells. |
| 2. Complement. | 4. Amboceptor. |
| 3. Antibody. | |

1. Antigens.

Antigens are substances, which when injected into an organism cause the formation of corresponding antibodies. These are usually prepared from the bacteria themselves. Example—auto-vaccines. On account of our inability to grow the Spirochæte, we use a 10% alcoholic extract of the liver of a syphilitic new born.

2. Complement.

Complement is present in all sera. What it is we do not definitely know. It is destroyed by heating to 56 degrees centigrade for one-half hour. For convenience it is obtained from guinea pig blood, either from the heart or by slaughtering the animal. It is not necessary to have this serum sterile. The blood should be collected in glass retainers and the serum pipetted off as soon as the clot is separated. As this is very unstable, it should be put at once on the ice.

3. Antibody.

Antibodies are present in all syphilitic sera, provided the disease is still active. This is best obtained by withdrawing under strict aseptic conditions 2 to 5 cc. of blood from the median basilic vein and allowing the blood to clot. Pipette of the sera, inactivate $\frac{1}{2}$ hour at 56 degrees centigrade, *to remove the complement*, put on ice until ready to make the test.

4. Amboceptor.

Amboceptor is an *antibody*. It is prepared by injecting into a rabbit the washed red cells (*an antigen*) of freshly defibrinated

sheep's blood. This is repeated about every five days for several weeks until the rabbit's serum had the power of laking red cells, 2 to 4 cc. of the red cells being injected each time.

When the rabbit has become sensitized sufficiently, the animal is either slaughtered or the heart punctured and the blood collected in sterile retainers under strict aseptic conditions. After the clot has separated, the serum is pipetted off, inactivated, *that means destroying the complement* by heating to 56 degrees centigrade for $\frac{1}{2}$ hour. A stock preparation if kept sterile can be kept months.

5. Red Cells (Sheep's Blood).

This is obtained from the carotid of a sheep (under strict aseptic conditions). This is at once defibrinated, washed two or three times with normal salt solution and in a 5% suspension with normal salt put in the refrigerator until ready for use.

The next step is to standardize our amboceptor. That is, to find in what dilution a definite amount of amboceptor will lake a given amount of red cells by the addition of a definite amount of complement. This test serves to control both the complement and amboceptor.

Next we standardize the organ extract (antigen). 1st. Ascertain that the antigen does not prevent or cause hemolysis. 2d. The serum of the suspected syphilitic containing antibodies should be tested in order to see that the complement is inactivated and the serum in conjunction with the amboceptor does not hemolyze red cells. The red cells should always be freshly washed with salt solution, taking great care not to use any that have hemolyzed.

Technique:

Take as many tubes as you have sera to be tested, always adding several known syphilitic and normal sera. Place in each tube about 10 cc. salt solution. A definite amount of antigen is placed in each tube. Next a definite amount of complement is added and lastly the serum to be tested (antibodies) is added; it is best to make duplicate tubes, using the original amount of antigen and complement and twice as much blood serum as in the first tubes. These are shaken well, put into the incubator for one hour at 37 degrees C. According to our diagram, the antigen is united to the antibody, being bound by means of complement, provided the patient's serum contains syphilitic *antibodies*.

Next we add a definite amount of amboceptor and red cells. These are in turn briskly shaken and placed in the incubator for another hour.

In the advent that there are no syphilitic antibodies present in the patient's serum, the complement deviates and binds amboceptor and red cells and a laking takes place. On the contrary, if the antigen is united to the antibody by means of complement, the red cells will not become hemolyzed as the complement has all been used up and the resulting mixture will be turbid, that is the red cells will remain undissolved.

Whether the limitations of this test extend beyond the mere diagnosis and permits us to judge in some degree of the effectiveness of a cure, time alone will tell. The tendency of the modern treatment of syphilis is toward a biologic treatment, that is, to control the treatment with the Wasserman reaction. Of one thing we are positive, that the Wasserman reaction gives us control of the diagnosis after the period of second incubation, no matter what length of time has elapsed provided the patient is not cured.

Unfortunately the Wasserman reaction is complicated. It requires time, patience and careful work and each series of tests must be controlled by known normal and syphilitic sera. Statistics in regard to the value of this reaction are now available in large numbers and there seems to be no branch of medicine or surgery that is not benefited by this discovery.

Since its introduction, this test has been performed upon thousands of cases and the statistics of the various authors have been practically the same.

Citron⁹ reports:

156 cases non-syphilitic, all negative.

108 cases syphilitic or suspected syphilitic, 74% positive.

43 cases tabes and paresis, 79% positive.

Blaschko¹⁰ examined 283 cases all syphilitic. He divides them into the following:

1. Primary eruption 63 cases, 90% positive.

2. Early syphilis with symptoms from 1st erup. to 4 yrs., 56 cases 98% +

3. Early syphilis without symptoms from 1st erup. to 4 yrs., 67 cases 80% +

4. Late syphilis from 4th year on with symptoms, 26 cases 91% +

5. Late syphilis from 4th year on without symptoms, 51 cases 57% +

6. Cerebro-spinal from 4th year on, 10 cases 60% +

Wasserman¹¹ examined 163 cases of syphilis. His classification is as follows:

Chancre	26 cases — 17 pos. = 68%
1st. eruption	42 cases — 39 pos. = 93%
2d. eruption	16 cases — pos. = 100%
Tertiary	16 cases — pos. = 100%
Lues of nervous system.....	8 cases — 6 pos. = 75%
Malignant syphilis	4 cases — 4 pos. = 100%
Hereditary syphilis	4 cases — 3 pos. = 75%
Latent syphilis	36 cases — 30 pos. = 83%
Cured	4 cases — 0 pos. 22.12.11.

9 years negative.

During the past year we have made some 200 examinations. Necessarily our cases have been confined to medical and cutaneous diagnosis and our results run parallel with those of the other observers quoted. A few cases of interest are the following:

1. A mother who had given birth to syphilitic child, had never shown signs of syphilis and according to Colle's law was immune to syphilis. Our serum test was positive.

2. Seven cases of syphilis ranging from 5 to 8 years' duration, gave a negative reaction. These cases had all had good antiluetic treatment.

3. One case of specific ulcer of the septum of the nose gave a positive reaction.

4. One case of Argyll Robertson pupil gave a positive reaction.

5. One case of optic atrophy gave a positive reaction.

6. One case of interstitial keratitis gave a positive reaction. Summing up Mühsam's¹² conclusions in regard to the Wasserman reaction in general, we have the following:

1. The reaction is specific.

2. A positive reaction shows the presence of active syphilis.

3. A negative reaction does not always show that lues is not present.

The value of the test in eye lesions may be appreciated from the following statistics:

Cohen¹³ reports.

Iritis	23 cases — 7 positive
Parenchymatous keratitis	9 cases — 6 positive
Choroiditis	3 cases — 2 positive
Optic atrophy	6 cases — 4 positive

Neuro-retinitis	1 case — 1 positive
Choked disc	5 cases — 5 negative
Paralysis of muscles	5 cases — 1 positive
Reflex irido-plegia	1 case — 1 negative
Ophthalmoplegia interna	1 case — 1 negative
Central scotoma	1 case — 1 negative
Atrophy of retina	2 cases — 1 positive
Atrophy of the iris	1 case — 1 negative
Vascular macula of the cornea.....	1 case — 1 negative

Of all these cases only 13 were clinically luetic, yet 23 gave a positive reaction, showing that in 10 cases he was enabled to make a diagnosis by means of the Wasserman reaction.

More convincing still are the statistics of Leber.¹⁴ He examined 160 cases. Thirty-one clinically were not syphilitic. In those cases that *were* clinically syphilitic 92% were positive.

In 95 cases syphilis could not be excluded, neither could it be proven; 42 were positive. These include:

Keratitis parenchymatosus	31 cases — 83% positive
Iritis	48 cases — 33% positive
Choroiditis and retinitis	23 cases — 26% positive

He calls special attention to the great value of the reaction in diagnosing retinitis and choroiditis.

Fleischer¹⁵ also calls attention to the value of the serum test in optical lesions.

In 10 cases of Keratitis parenchymatosus.. 9 positive 1 negative

In 6 cases of Iritis..... 1 positive 5 negative

This agrees with the clinical experience that iritis is more often tubercular and keratitis luetic.

From these statistics we are able to judge, that the Wasserman reaction in eye lesions is just as valuable as in other branches of medicine and surgery.

Cohen's opinion in regard to the serum diagnosis in eye lesions is as follows:

A. If negative it gives certain diagnostic points.

B. If positive it is decisive for diagnosis and treatment. In conclusion we have the following to say:

1st. That Spirochæte Pallida are present in all syphilitic lesions including those of the eye.

2d. In chancres and mucous patches, the diagnosis should be made by the demonstration of the Spirochæte.

3d. All other lesions of the eye of syphilitic origin, may be diagnosed by means of the Wasserman test.

4th. Eye conditions depending upon pathological changes in the nervous system of syphilitic origin, may be diagnosed by the Wasserman test.

5th. All doubtful cases that might be explained on a syphilitic basis should be given the Wasserman test.

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ANOTHER CASE OF MENINGOCOCCUS CONJUNCTIVITIS.

BY S. HANAFORD McKEE, B. A., M. D.

From the Pathological Laboratory of the Montreal General Hospital.

In the September number of the OPTHAMALIC RECORD, the writer reported the results of the bacteriological examination of six cases of conjunctivitis occurring in patients with epidemic cerebro spinal meningitis. Since that report, another case has come under observation.

Some weeks ago, I was asked to examine the fundi of A. R., a school girl, aged 13 years. The history given was that two days previous to the examination she had complained of a headache which was severe enough to make her cry out. Two days later she became unconscious and was brought to the hospital. The following day her eyes were examined and the fundi found normal. She had, however, a definite catarrhal conjunctivitis, which was more marked on the left than the right side.

Suitable media consisting of blood serum and haemoglobin

agar were inoculated with secretion from each conjunctival sac, and 24 hours later examined.

From the right eye the bacillus xerosis and a gram negative diplococcus were found, while from the left, the bacillus xerosis, the staphylococcus albus and a gram negative diplococcus. The most profuse growth was found on the haemoglobin agar, upon which the appearance of the different organisms was very pretty. The colonies of the bacillus xerosis were smaller than the other two, while the difference in color between the white staphylococcus and the bluish tint of the gram negative diplococcus was very marked. In each tube there were from 20-30 colonies of the gram negative diplococcus, which was very easily obtained in pure culture, and was compared with the micrococcus catarrhalis, the gonococcus, and the meningococcus. The organism grew well on blood serum, and only at the body temperature. Upon plain agar it did not grow as profusely as the micrococcus catarrhalis but more so than the gonococcus. It was viable for only 48 hours, and smears from even a 24-hour culture showed many degenerated forms.

Without going into the cultural details so recently gone over, it may be said in morphology, cultural features, and sugar reactions, this gram negative diplococcus, obtained from the conjunctiva was identical with the meningococcus which was cultivated from the cerebro spinal fluid, upon two occasions.

Careful examination will show the micrococcus catarrhalis to be a much more frequent inhabitant of the conjunctiva than has been supposed. This must be borne in mind in differentiating the gram negative diplococci of the conjunctival sac. The gram negative organisms found in the conjunctiva in purulent ophthalmia are not always gonococci, or those in the conjunctiva in meningitis cases meningococci.

While both micrococcus catarrhalis and meningococcus have been found in conjunctivitis cases in meningitis it is a question, whether either is the etiological factor in these cases. Nevertheless, conjunctivitis has been frequently noted in cases of epidemic meningitis and latterly where the secretion has been examined bacteriologically, the meningococcus has been isolated. This case makes the seventh examined at the Montreal General Hospital, and the third case of conjunctivitis, where the meningococcus was obtained in pure culture.

Reports of Societies

COLORADO OPHTHALMOLOGICAL SOCIETY.

Tenth Anniversary Meeting of March 20, 1909, in Denver, Dr. Melville Black Presiding.

Traumatic Cyclitis.

Dr. G. H. Strader presented a man whose right eye had been injured six weeks before, by flying particles from a breaking rawhide whip. The eye soon became red, but pain was not felt until six days later. Iritis, with posterior synechiae, developed. The patient then sought medical relief. A piece of rawhide one-fourth inch long and several bits of copper wire from the inside of the whip were recovered from the conjunctival cul-de-sacs. Large doses of sodium salicylate were given, and atropin and dionin instilled. Vision had risen from light perception to 4/30. Tension normal or slightly lowered. X-ray, magnet and trans-illumination revealed no foreign body in the globe.

Drs. Jackson and Libby noted haziness in the vitreous, with some moving bodies, and a scratch (not scar of perforation) on the cornea near and crossing the limbus; and thought the disturbance was cyclitis due to traumatism, rather than foreign body within the eyeball.

Congenital Absence of Superior and Inferior Recti.

Dr. D. H. Coover showed a woman with absence of these muscles, as shown by operation for advancement of seemingly paralyzed muscles. He had reported this case to the Society at the October, 1908, meeting. The question was raised of tenotomizing and re-attaching the external rectus for inward and upward squint, with diplopia.

Dr. Jackson favored this operation for relief of the squint, but not with much hope of benefiting a congenital diplopia.

Dr. Neeper thought the cosmetic effect would not be improved by operation; neither would he remove the eye, as it had vision of 10/200.

Paresis of External Recti.

Dr. Black presented a girl of 14 years, who had menstruated regularly for one year. For the past six months she had noticed a gradually increasing diplopia, with dull constant fronto-occipital headache. R. V.=20/40 with +2.00 +0.50 cyl. ax. 90° L. V.=20/20 with + 1.00 +0.50 cyl. ax. 90°. There was paresis of

both externi, with an esotropia of 45° . The fundus showed pronounced venous engorgement in each eye.

Extensive Lacerations of Eye Lids.

Dr. D. A. Strickler showed a man who had fallen from a wagon, striking his head on sandy ground, twelve days before; badly lacerating the forehead, cheek, and both lids. The upper lid was torn from outer to inner canthus, about one-half inch from the ciliary border; with a second cut, penetrating the lid, from the ciliary margin to the longitudinal laceration. The lower lid was also torn longitudinally for half its length. The cornea had not been injured and vision remained unimpaired. Some of the stitches had held, while others broke out because necessarily placed in necrotic tissue.

Cilio—Retinal Artery.

Dr. Jackson presented a patient in whose right eye a small artery could be seen arising from a choroidal vessel visible at the temporal side of the disk, passing on the disk about one-eighth of its diameter, becoming more superficial and passing off to be distributed to the retina in the region of the macula.

Traumatic Dilatation of Pupil and Cycloplegia.

Dr. Jackson showed a boy of 15 whose right eye had been struck with the dart from an air gun, twelve weeks previously. When first seen, at the end of five weeks, the pupils were R. 7 mm., L. 3.5 mm. Accommodation, R. 1 D., L. 10 D. Vision of $\frac{4}{12}$ was brought up to $\frac{4}{4}$ partly by $+0.75$ s. $+0.75$ cyl. Under pilocarpin the pupil contracted to 3.5 mm. Now, without a myotic, the pupils were R. 5 mm., L. 4 mm. and the accommodation had risen to 7 D.

Discussion.—Dr.¹ Stevens recalled a brakeman struck in the eye by a flying nail, causing a corneal abrasion and complete ciliary paralysis. Under eserine the accommodation returned to normal, but the pupil would not respond to light or convergence. He also spoke of widely dilated pupil and vision reduced to light perception, following a blow on the eye from a cork. Later, the sight had returned; but the pupil remained enlarged, which was likely to be permanent.

Dr. Sisson related a case of complete paralysis of the accommodation caused by a blow from a snow ball, with depreciated vision. The sight improved slightly, but the paralysis remained.

Episcleritis.

Dr. G. F. Libby presented a woman of thirty in whom he had lately observed episcleritis closely follow mild iritis. This eye had been slightly inflamed two or three times a year, in the past five years; and had promptly cleared up each time under sodium salicylate. The exhibition of this drug, preceded by calomel and followed by potassium iodide, together with atropine locally, was not giving satisfactory results. No specific or tubercular history or present manifestation was ascertained.

Discussion.—Drs. Friedmann and Coover considered it a case of phlyctenular conjunctivitis, while Dr. Jackson believed it to be episcleritis.

Dr. Black advised further search for tuberculosis.

Dr. Bane would give protoiodide of mercury, Dr. Hess sodium cinnamate, and Dr. Conant would use massage over the scleral swelling.

Dr. Libby also showed a woman of thirty-four, with a history of a blow over the middle of the left eye brow, one month previous. R. V. = $\frac{4}{3}$ mostly, L. V. = $\frac{4}{6}$, each with or without correction. The right pupil was $2\frac{1}{2}$ mm. at rest, $6\frac{1}{2}$ mm. under 1% hemotropin. The left was 3 and 6 mm., respectively, under the same conditions. The ophthalmoscope revealed a faint pigmented ring about $\frac{1}{2}$ disk diameter in size, enclosing retina of a hazy, skimmed milk appearance, which was crossed by a tiny Y-shaped vessel, and situated about $\frac{1}{2}$ d. d. upwards and inwards from the macula. A distinct scotoma could be mapped on meridian 155° , four degrees from the center of fixation and two degrees in width; vision in the scotomatous area being about $\frac{4}{30}$. As the anisocoria and the scotoma had been noticed by the patient nine years before, when her first glasses were fitted, and as the retinal changes were evidently old, it was believed that the recent traumatism was merely a coincidence and had caused no ocular injury.

The Society further observed its anniversary by a dinner at the University Club, arranged by Drs. Coover and Black, charter members.

Dr. Edward Jackson, founder of the Society, gave an address entitled "The Local Ophthalmological Society" (published in the May issue of the OPTHALMIC RECORD).

Dr. E. W. Stevens, the first secretary of the Society, inaugurated the custom of sending reports of the transactions to the OPTHALMIC RECORD. He called attention to the fact that many questions of public policy as well as health matters pending before state

legislatures and congress had originated and were being pushed by medical men.

Dr. W. C. Bane, another charter member, spoke of the help this society had been to him, and made some interesting reminiscences.

Dr. John Chase said that he had never attended a meeting but that he was led to read up, afterward, some points touched upon.

Dr. E. O. Sisson, the newest member, told of the advantages of the Society to him. GEORGE F. LIBBEY, Secretary.

WILLS HOSPITAL OPHTHALMIC SOCIETY.

Meeting March 2, 1909, in Philadelphia.

WILLIAM CAMPBELL POSEY, M. D., CHAIRMAN.

Brain Tumor.

Dr. S. D. Risley presented for study a patient from the wards of the hospital who had presented himself ten days before with double choked disc and hemorrhages, severe right hemicrania, insomnia, vomiting, bad station, and difficulty in walking. A tentative diagnosis of brain tumor was made. The man was placed in bed and a calomel and soda purge followed by saline catharsis administered. Central vision was much reduced, the fields concentrically contracted and an absolute central scotoma in each eye.

Dr. Weisenburg saw the case in consultation four days later, when it was found that his headache had disappeared, his station and gait had markedly improved and the intra ocular hemorrhages had absorbed. The man was a Russian Jew, and his history was elicited with difficulty. Although a cooper by trade, for the past year and a half he had been employed in the manufacture of lead paints. There was no history of colic, he had no wrist drop, but the blue-green line of plumbism was present. There was some tremor of hands, but little if any disturbance of reflexes and no ocular palsy.

Dr. T. H. Weisenburg said that he first saw Dr. Risley's patient about ten days ago, and at that time he presented the usual pressure symptoms of brain tumor, such as headache, nausea, vomiting, vertigo and choked disc. He had besides an irregular tremor in his limbs, such as occurs in toxic conditions, a lead line on the gums, and a general increase of tendon reflexes. The case seemed unusual—because, in Dr. Weisenburg's experience, choked disc, especially of such height as described by Dr. Risley, is rarely

seen in lead intoxications. In answer to a question Dr. Weisenburg stated that it was impossible to foretell in any given case of lead intoxication what the nervous symptoms would be. The results of lead intoxication resemble very much those of syphilis and hysteria, inasmuch as any group of symptoms can be expected. It depends entirely upon the degree of the intoxication, and especially upon the resistance of the individual or his tendency for a special form of intoxication. Examples are daily furnished in which groups of men work in lead and never suffer from lead poisoning, while an individual with a predilection for the disease may be intoxicated by lead after only a limited exposure. He thought that in so far as the present case was concerned the patient should get well, although there may be a limited amount of optic atrophy resulting from the choked disc.

In answer to Dr. Posey's question as to what other, or what, symptoms there need be present to advise a decompressive operation for choked disc, Dr. Weisenburg stated that he would recommend operation in any case in which there were present the usual pressure symptoms of brain tumor, with choked disc of three or four diopters, but that in the present case he did not, inasmuch as the cause was lead, and that it would be advisable first to eliminate the toxins. But if the choked disc did not subside within two or three weeks he would advise a decompressive operation, for only then would there be a chance for some vision remaining. He further stated that he believed that in any given case where there were the usual pressure symptoms of brain tumor with choked disc, and in which there was no toxic cause apparent, there should be done an immediate decompressive operation, for it is only in the early stages that benefit can be derived. The most successful case in his experience was one that was referred to him by Dr. S. D. Risley from the Wills Hospital. This patient presented the usual general symptoms of brain tumor with the extraordinary amount of choked disc of eleven diopters. The patient was removed to the University Hospital and a decompressive operation was done by Dr. Charles H. Frazier. At first the dura was not cut, as it was the desire of Dr. Weisenburg to find out whether a removal of bone would have any influence upon the lessening of the choked disc. There was at first a subsidence of two diopters and a cessation of pressure symptoms, but in a few weeks the choked disc again mounted to eleven diopters and a second operation was done, in which the dura was cut. The optic

neuritis subsided gradually, and in the course of two months the optic nerve head was almost normal. The patient went back to his occupation as coal miner and was seen by Dr. Weisenburg a month ago. With the exception of a limited amount of optic atrophy the patient's sight was good, and he had complained of no symptoms since the operation. This was by far the best example of the benefits of decompressive operation for choked disc that he had seen.

He also further stated that he did not believe in the usual theory that choked disc in brain tumor is due to an excess of secretion of the cerebro-spinal fluid, for in his experience in the many decompressive operations he had seen he had never observed an excess of fluid. He believed that the choked disc was brought about by a mechanical pressure, and that by a decompressive operation the pressure is equalized and the choked disc subsides from this cause.

Dr. Risley in closing the discussion said he very much doubted the value of a decompression operation, having in view the high grade of papillitis, its duration and the marked contraction of the fields with the absolute central scotomata. Then, too, he was disposed to regard the case as one of toxic origin, the lead poisoning having involved the intracranial structures, which, rather than a tumor, as he had at first thought, was the cause of the pressure symptoms, resulting in the papillary oedema with inflammation and marked infiltration of the nerve. Dr. Risley thought that blindness from atrophy was imminent and that a decompression operation now would not prevent it, although it might have had it been performed earlier.

Dr. Posey was inclined to think that the papilledema had been occasioned by a cerebellar growth, and asked Dr. Weisenburg if the time was not now ripe for a decompression operation.

Case of Argyrosis from the Use of Argyrol.

Dr. William Zentmayer exhibited a case of Argyrosis from the use of Argyrol. The patient had used the drug over a long period of time, but had trusted to correspondence with the attending physician for advice in regard to the use of it.

Dr. Posey had seen two cases of conjunctival argyrosis occasioned by the prolonged use of argyrol. Unlike the staining of the tissues from silver, however, the discoloration of the conjunctiva totally disappeared after some months' discontinuance of the drug.

Dr. Schwenk recited a brief history of a case from his clinic. The patient had used a solution without interruption during one summer. It is now two or three years since it was used, yet the conjunctivas are still deeply stained.

Erysipelatous Eruption, With Ulcer of the Cornea.

The house surgeon, Dr. Jennings, exhibited a case from Dr. Poseys' service, in which an erysipelatous eruption of the face had been excited in a man past middle life, with an extensive ulcer of the cornea, by either atropine or iodoform applications to the eye. Ice, lead water and laudanum and ichthyol had all seemed to aggravate the skin lesion, which finally yielded speedily to compresses moistened with a hot saturated solution of sulphate of magnesium, which had been recommended by Dr. Schwenk.

Dr. Posey then exhibited the following cases from his clinic: (1) Result of excision of the lachrymal sac; (2) an eczematous ulcer of the cornea; (3) herpetic ulceration of the cornea of gonorrheal origin; (4) retained pupillary fibers; (5) neuroretinitis of leueitic origin.

Tubercular Keratitis.

Dr. Luther C. Peter presented a patient suffering from tubercular keratitis in the left eye. The patient, 13 years old, in October, 1908, developed an indurated, grayish red plaque, about four mm. square, elevated one mm. above the cornea in the lower outer quadrant. The iris was spastic, photophobia was marked, but there was little or no pain. The case was treated by Dr. William Hornby, the family physician, without apparent result, and on December 2 was admitted to the Northwestern General Hospital. Dr. Charles A. Oliver, the consultant, concurred in the diagnosis of tubercular keratitis and tuberculin treatment was advised. The local treatment of atropine, boric acid wash and hot stupes, was continued, and Von Ruck's watery extract No. 100 of tuberculin was administered hypodermatically. The No. 100 solution was diluted ten times, forming solution No. 10, and this dilution was diluted ten times, forming solution No. 1. Of solution No. 1 $1\frac{1}{10}$ cc. diluted by a $\frac{4}{10}$ phenol in normal salt solution, was the initial dose; subsequent doses were increased $1\frac{1}{10}$ cc. as circumstances warranted. A slight rise in temperature and malaise followed the first and second doses, but there was no local reaction either in the eye or in the right pulmonary apex, which was the seat of a tuberculous process.

After two weeks of treatment the ciliary injection disappeared and the plaque flattened and began to move bodily around the center of the cornea, making the circuit of the cornea in about three weeks, leaving in its path a nebula. It remained stationary when it reached its original site and disappeared only after two curettements and application of one per cent formalin solution. The corneal periphery is now clear, the mid zone cloudy but clearing, vision having improved from movement of objects to 8/200. The disease in the lungs has been arrested and the general health is much improved.

Dr. S. D. Risley inquired if there had been any reaction in the lung after the tuberculin injection and cited a case of his own in which marked reaction had followed in the eye after the injections, but the eye recovered rapidly. Now injections were given about two weeks apart, with diminishing reaction after each until the fourth, when there was none—and the eye well.

Dr. Schwenk was of the opinion that if the case were tuberculous the injection of tuberculin ought to have produced a pronounced reaction, particularly so as it was believed the injection had caused the healing of the pulmonary focus.

Dr. Posey referred to a paper which he had read before the society a year ago upon Tubercular Keratitis, in which he had expressed the conviction that a large proportion of the 30 per cent of cases of interstitial keratitis in which no syphilitic history is obtainable is due to tuberculosis. He said that in his experience the projection of a tongue-like area of yellowish-white infiltrate from the limbus into the interstitial lamellae of the cornea toward its center, and the occurrence of discreet yellowish-white oval areas, which appear caseous and avascular, is very significant of tubercular keratitis, while he has observed the deposition of small rounded areas resembling drops of cold mutton fat upon the posterior surface of the cornea or in the lamellae of the cornea, secondary to tubercle of the iris and of the deeper parts of the eye.

He employs tuberculin after the method of von Hippel, beginning with 1/500 milligram and doubling the dose every forty-eight hours until a general reaction is obtained. He referred to a case of solitary tubercle of the choroid, which is under treatment at the present time, in which the tubercle seemed to be melting away under this plan of treatment.

Dr. Peter said, in answer to the question raised by Dr.

Schwenk, the initial dose used for therapeutic purposes was so much smaller than that which would be administered for diagnostic purposes that one could hardly expect to note a local reaction. The dermal and conjunctival reactions are obtained directly at the seat of application and constitutional symptoms are not as a rule observed.

Isolated Superior Oblique Palsy.

Dr. Posey then exhibited a case of isolated superior oblique palsy in a young woman with cerebro-spinal lues. The palsy had disappeared after six weeks of treatment with K I, but two years later the patient returned with an Argyll Robertson pupil in the right eye and a very sluggish light pupil in the left. Dr. Spiller had failed to find other signs of involvement of the nervous system.

Oculomotor Paralysis Accompanied by Facial Palsy.

Dr. Chance reported a case of "Oculomotor Paralysis, accompanied by Facial Palsy, Neuroparalytic Keratitis and Hemiplegia," which had occurred in a woman who had been under treatment at the hospital three years ago. Her present condition showed that the cornea is without blemish; the hemiplegia has disappeared, and the facial palsy also, but there remains anesthesia of the face, and an internal and external ophthalmoplegia.

Dr. Weisenburg thought that Dr. Chance's case was very unusual, because in most cases of cerebral syphilis in which there was hemiplegia and oculomotor palsy, the symptoms were due to one lesion at the foot of the cerebral peduncle, whereas in Dr. Chance's case there must have been two, one in the right cerebral hemisphere to account for the left hemiplegia and the second at the foot of the cerebral peduncle on the left side, which caused the left oculomotor palsy.

The occurrence of oculomotor palsy in syphilis is, of course, very common. Dr. Weisenburg thought that of all the ocular palsies which occur in syphilitic and parasymphilitic diseases the prognosis is always unfavorable when the whole of the oculomotor nerve is involved, for he does not recall having seen many instances in which there was a total clearing up after such involvements, while it is usual to have the symptoms clear up if only one ocular muscle is involved.

One interesting fact struck him in the treatment of this case. Whatever improvement occurred was only after the application

of mercurial inunctions. Dr. Weisenburg's experience was such that he did not have much faith in potassium iodid in the treatment of active syphilitic lesions, and that whatever results he had had he thought were due entirely to the use of mercury. His habit was to use mercurial inunctions, a dram daily, with the exception of Sunday, and keep this up for about six weeks, to cease for two, and then give another course of six weeks' treatment, and if at the end of that time no benefits were derived to cease treatment entirely.

In answer to questions he stated that he had very rarely used iodid, and that when he did so he used it only in small doses, hardly ever giving more than fifteen grains three times a day; that the use of iodid in large doses was distinctly an American habit and that it was not at all customary to give large doses in the treatment of syphilis by Continental neurologists.

In answer to further questions he stated that it is impossible in any given case to foretell whether or not there would be any involvement of the nervous system after syphilitic infection, for he had repeatedly seen cases who were well treated and in whom only a few years after the infection there was involvement of the nervous system. He believed that it depended entirely upon the resistance of the individual for the toxin, and secondly, upon a certain special form of syphilitic poison. Repeated instances have been recorded in which families have become infected by syphilis in whom subsequently the nervous system was involved and tabes developed. The argument in such cases would be that there was a family predilection for the disease or that there was a special intoxication. On the other hand, cases are recorded in which persons not at all related were infected from the same source in which only one or two developed syphilis of the nervous system. The truth is that in no given case can the prognosis be made, and that it depends entirely upon the resistance of the individual and the special kind of intoxication. He thought that treatment did not make any difference in the prognosis, for he had repeatedly seen cases who were well treated and in whom active nervous symptoms developed a few years after the infection. In fact, the most active syphilitic nervous manifestations he had seen were in cases that were extremely well treated and which developed two or three years after the infection.

Dr. Risley said that in the treatment of oculo-motor palsies due to syphilis he had always given potassium iodide in ascending

doses, but often without result other than in general improvement of health, until large doses—often 100 for three times daily—had been reached, when the palsy would rapidly disappear. In most of the ocular manifestations of syphilis, however, he preferred mercury, and thought its efficiency much greater when administered by injections. He thought this was true not only in secondary but in the later symptoms and the hereditary disease, as in interstitial keratitis.

Dr. Posey referred to the frequency with which involvement of one or more of the extraocular muscles occurs in early cerebro-spinal syphilis in answer to the question raised by Dr. Weisenburg, and thought he had frequently observed isolated palsy of muscles supplied by branches of the third nerve, he thought he had never encountered a complete palsy of this nerve in early tabes, though he had recently studied several cases of advanced posterior sclerosis of the cord where this condition was present.

He referred at some length to the prognostic import of palsy of the iris and ciliary muscle, usually monocular, which occurs at times in syphilitic subjects. Instead of always being the forerunner of grave complications in the nervous system, Dr. Posey had observed several cases over a long series of years, where the ocular palsy remained the only demonstrable lesion in the nervous system. He had always relied upon high doses of potassium iodide in the treatment of palsies of the ocular muscles, and thought that most ophthalmic surgeons did likewise, but he would be glad to follow Dr. Weisenburg's suggestion and to change the treatment to mercury in the case under observation.

Dr. Chance in closing said that he counted himself an American, and if the use of mercury in syphilitic and parasyphilitic diseases as they occurred in his experience was a French practice he was not aware of it. He believes that a course of mercurials offers surer hopes for success than larger doses of the iodides. He prefers inunction. He has no recollection of giving higher than 15 drop doses of potassium iodide.

BURTON CHANCE, Secretary.

SECTION ON OPHTHALMOLOGY—COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting, March 18, 1909.

DR. WILLIAM ZENTMAYER, Chairman. Presiding

Uremic Amaurosis Following Scarlet Fever.

Dr. A. C. Sautter reported the following case history: A boy, aged thirteen years, was admitted to the Municipal Hospital, Philadelphia, with scarlet fever in the desquamating stage and tonsillar diphtheria. Four days after admission uremia set in, with convulsive seizures, coma, and complete amaurosis, the pupils being dilated and not responsive to light.

Examination of the urine showed 2.75 per cent albumin and granular casts. Amaurosis continued for nearly a week, when a gradual improvement followed, and about five weeks later he was able to read large print. There was some tortuosity of the retinal vessels, with slight veiling of the disk margins, otherwise the fundus examination was negative. The pupils now reacted to light, and were of equal size. Further examination revealed contracted fields, with a symmetrical sector-like defect in the inferior half of each field. There was no central scotoma. Vision, O. D. = 5/45; O. S. = 5/45. Type No. 2 read with difficulty. No evidence of accommodative palsy. In spite of antinephritic treatment only slight visual improvement ensued during the next five months, at the end of which time the patient disappeared from observation.

In most of the cases of uremic amaurosis previously reported, vision returned to normal within eighteen to seventy-two hours and the pupils reacted to light.

The retention of the pupillary light reflex in the majority of instances and the fact that homonymous hemianopsia has been observed in connection with uremia are in favor of ascribing the usual uremic amaurosis to a cortical lesion.

The case just reported, other cases where the pupils are not responsive to light, and still others where visible peripheral lesions accompanied uremic blindness, suggest that occasionally the more distal ocular elements may be involved.

Dr. Posey referred to a case which he had under treatment at the present time of a boy, aged thirteen years, who had developed a pronounced neuroretinitis in both eyes eighteen months previously, following a mild attack of scarletina. The patient had received the best of systemic care by his family physicians, and had

seemed in fair health, although the ocular inflammation, which had subsided for a time, had recently reappeared with renewed violence.

Dr. Posey referred to the interesting paper of Sydney Stephenson on "The Ocular Changes of Renal Disease in Children," and said that this author thought that, were affections in the kidneys as common in children as in adults, retinal complications would be relatively as frequent in one class as in the other. Stephenson had failed to find a case of typical renal retinitis in association with acute nephritis, though he had observed bilateral papillitis, which resembled the choked disc of brain tumors. He divides the ocular changes in chronic nephritis into three classes, which may occur together or separately: (1) The retinitis which closely resembles that of adults; (2) papillitis; (3) neuroretinitis. Detachment of the retina is also occasionally observed, but in association with retinitis. Nettleship has made the important observation that the severe eye changes in 40 cases of juvenile retinitis collected by him were larger than in any consecutive number of cases in older subjects.

Dr. Posey pointed out that a very interesting phase of the subject under discussion was the prognosis for life which could be made after ocular changes appeared in the eyes of children from nephritis, and referred in this connection to observations of Lawson and Sutherland, that albuminuric retinitis in childhood carries with it a prognosis as bad as it does in older subjects. Nettleship found that no fewer than sixteen of his patients died in an interval of less than four months after the discovery of the retinitis, and only five of his patients lived more than twelve months. In view of these figures, Nettleship thought that the prognostic significance of retinal changes in young subjects may actually be graver than in adults.

Dr. Zentmayer said that in May, 1903, he had been asked by a physician of this city to see his brother, aged fifteen years, who had become suddenly blind. Four weeks previously he had had an attack of scarlet fever. The eruption had been unusually intense and the desquamation marked. He had been up and about for one week. On the second day he complained of anorexia and somnolence, and on the fifth day intense occipital headache and vomiting occurred, accompanied by loss of all vision except light perception. When seen by him eighteen hours after the onset of blindness, vision was returning, and large objects could be distin-

guished. The pupils were 2.55 mm. and reacted promptly to light. The fundi were normal. The urine had contained albumin. Sweating was advised, but before it could be induced the boy had eighteen convulsions. There was complete recovery of health and vision.

Dr. Zentmayer said that it would seem that the cases of post-scarlatinous blindness might be divided into two classes: Those in which the toxic agent acted upon the cortical centers, in which case the pupils would be found to react to light; and those in which the toxic agent acted upon more peripheral parts, probably the ganglion cells, in which case the reaction of the pupils would be affected proportionately with the reduction of visual acuity.

Steel Injury of the Eye.

Dr. T. B. Holloway cited the history of a patient who had come under his observation at the Phoenixville Hospital.

When first seen a few hours after the accident there was a slight injection of the ocular conjunctiva; the cornea revealed a linear cut about 8 mm. in length, which began at the upper and inner part of the cornea and extended down and out to the corneoscleral junction. The iris was likewise cut in a position corresponding to the lower and outer portion of this incision. There was no prolapse of the iris. The lens was turbid, and some opaque and swollen lens matter occupied a portion of the anterior chamber. The tension was reduced while the vision was restricted to light perception. An X-ray examination showed a large foreign body situated in the lower and inner posterior segment of the globe. It was successfully removed with a Sweet magnet through an incision made beneath the internal rectus muscle, and well toward the internal canthus. The piece of steel corresponded in shape to the segment of a circle, and measured 11 mm. in length and 4 mm. at its widest part. The weight was $\frac{7}{8}$ of a grain. The final vision was light perception.

A Case of Unilateral Retrobulbar Neuritis Due to Ethmoiditis, with Restoration of Vision.

Dr. Frederick Krauss cited the following case history: The patient was a female, aged twenty-five years, married. She complained of dim vision and a black spot before the right eye. Nasal symptoms were denied. The vision was 2/30 dimly, caused by a broad central scotoma. Absolute in part of its extent.

A deviated septum occluded the right nostril, allowing a par-

tial view of the turbinates only after cocainization and force. After the evacuation of a few drops of pus the vision began to clear, and became nearly normal a few days after correction of the septal deformity and opening of the anterior and posterior ethmoidal cells. Eight months later the vision was normal.

In this case the indications of sinusitis were monocular retrobulbar neuritis, blocking of the nostril of the same side, and increased vision after evacuation of pus from the posterior ethmoidal cells.

Dr. Risley said he was glad that Dr. Krauss had again called the attention of the section to the important relationship which may exist between optic nerve disease and affections of the sinuses. Many cases of optic neuritis, optic atrophy, and disease affecting the uveal tract, of obscure etiology, Dr. Risley believed to be due to sinus disease. The anatomical relationship of the sphenoidal sinus and posterior ethmoidal cells to the commissure and the optic nerves in their course to the optic foramen created a peculiar liability to extension of disease from these bony cells to the optic nerves. In many skulls the bony walls were very thin. A specimen in his possession exhibited this fact in a remarkable manner: Not only were the walls thin, but there was a diverticulum from the sphenoidal sinus lying above anteriorly, draining into the main sinus, and its paper-like inner wall forming a portion of the groove for the optic nerves.

Not only, however, were affections of the sinus responsible for optic nerve disease, but the *fons et origo* of many cases of persistent asthenopia, with fluffy, turgid or woolly choroid. He thought it doubtful if an acute sinusitis ever fully recovered. Chronic disease of the lining mucoperiosteum certainly persisted in many cases for a long time, and were liable on slight provocation to more or less severe acute exacerbations, at which time the uveal tract would become congested; the asthenopia, headache, etc., being a part of the symptom complex.

Dr. Posey said that Onodi had explained why optic neuritis might be occasioned by ethmoiditis as well as sphenoiditis, by his demonstrations that the posterior ethmoidal cells frequently joined in the formation of the optic foramen. Dr. Posey referred to a paper which he had read some years ago, in which he had shown that an early implication of the optic nerve in cases of sinusitis might be diagnosticated by a choking along the lymphatics of the retinal vessels and by a blurring of the edges of the nerve ophthalmoscopically, while a diminution in the light sense, as demonstrated by the Bjerrum types, was also present.

The Ocular Symptoms of Barlow's Disease, with the Report of a Case.

Dr. J. Hiland Dewey stated that the ocular symptoms of scurvy in children are ecchymosis of the lids, ecchymosis of the conjunctiva, hemorrhage of the conjunctiva and exophthalmos. Of these symptoms, exophthalmos is alone peculiar to infantile scorbutus. Optic neuritis and retinal hemorrhage as occurring in adults with scurvy has not been observed in children, but the only record of an ophthalmoscopic examination having been made was one by Spicer in Nettleship's clinic, in which the findings were negative. Sutherland and Barlow in postmortem examinations record extensive hematomas of the dura, which might well give rise to either of these.

A black and blue eye in an infant, due to no violence, as pointed out by Cheyney, can rarely be due to anything but scurvy.

The proptosis in one eye with ecchymosis of the lid may be followed in a few days by a similar process in the other eye, though this is apt to be less severe. This is caused by a hemorrhage into the easily distended space between the roof of the orbit and the periosteum.

The case reported was one in which a hand-fed infant, aged eleven months, had had a proptosis suddenly develop in one eye, followed in a few days by a marked bulging of the fellow eye. The eyelids of both eyes were ecchymotic, and there was slight ecchymosis of the conjunctiva. The child was pale, emaciated, pseudoparalytic, and cried on being touched. There was marked enlargement of the left thigh and knee, the left tibia and fibula were fractured, a large brawny induration existed in the left leg, and two small ones in right leg. A swelling was present above each wrist, a slight elevation of the gums could be noted around both upper and lower incisors, which were the only teeth present; had drivelled blood and vomited blood at times. Black stools at intervals. Rapid recovery under antiscorbutic diet.

Report of a Case of Keratitis Probably Due to Metastatic Gonorrhea.

Dr. Wm. Campbell Posey reported a case of Keratitis probably due to metastatic gonorrhea. The inflammation, which occurred in a male, aged twenty-eight years, had the characteristics of an unusual form of vasicular keratitis engrafted upon an old macula, the central portion of the cornea being more or less opaque, and the seat of some six or eight small vesicles. The entire

membrane was superficially hazy, and near the upper limbus there were three or four rounded opacities, which probably marked the seat of earlier vesicles. The cornea was avascular and the conjunctiva was but little injected. The eye had been inflamed twelve years previously, and had also suffered several other relapses. The patient was in robust health, but it was thought possible that the ocular inflammation might be connected in some way with attacks of urethritis with which he had been affected, the first attack having preceded by some weeks the primary involvement of the affected eye and a fresh outbreak of gonorrhea having been contracted shortly before the present inflammation in the eye appeared. Bacteriological examination of the eye discovered gonococci on the cornea. Gonococci were also found in the secretion of the urethra. There was no history of arthritis.

The patient was admitted to the Wills Hospital, and, in addition to the local treatment, he was given antigonococcic serum. Although considerable febrile reaction followed, it was impossible to determine a local reaction. The eye continued to be actively inflamed for a long period, all forms of local treatment making but little impression upon it.

Dr. Posey referred to forty cases of affections of the corneæ following systemic gonorrhea reported by Byers, of which nine were probably metastatic in origin, eight doubtful, being either primarily metastatic or else secondary to some preceding metastatic conjunctivitis, while one was due to secondary contamination from the conjunctival sac. According to Byers, one is justified in inferring that the keratitis associated directly or indirectly with systemic gonorrhea is typically of a multiple and superficial nature, commonly symmetrical in character and central in situation.

Dr. Posey referred at some length to the gonococcic serum first when gonococci are not found in the conjunctival tissue and excite introduced by Torey and Rogers, and its action both in acute and chronic manifestations of gonorrhea. He said that the serum had been employed but rarely in ophthalmic cases. He had employed it himself in several other cases of ocular disease, both of whom were suffering from multiple arthritis, but was unable to note any demonstrable effect. He was inclined, however, to believe that the serum may not have been properly prepared or administered, and desired to suspend judgment regarding its value until he had made more numerous and better controlled tests.

Dr. Turner suggested that as gonococci were found in the se-

cretion of the cornea, it was not a case of metastatic infection, but bacteria introduced probably by the patient, and also that the bacteria so introduced had lost some of their virulence. He stated that he had been on the lookout for a case of undoubted metastatic eye infection to try a treatment which is eminently successful in gonorrheal arthritis, viz., 1/30 grain of bichloride of mercury with 1 to 2 drams of the syrup of the iodide of iron three times daily.

Dr. Zentmayer asked in what percentage of cases gonococci had been found in the corneal tissue in the cases of other observers.

In closing, Dr. Posey said that he thought it unlikely that the gonococci which were found in the eye were there as the result of direct infection, as if such had been the case it is more than likely that active conjunctival symptoms would have been present. He said that it was well known, of course, that gonococci were found in the secretion at times in even metastatic cases, and that even when gonococci are not found in the conjunctival secretion, they are not far off, but lie embedded in the conjunctival tissue and excite the inflammation from that point. When gonococci are found in the conjunctival secretion, it indicates an exceptional intensity of inflammation. It is true that the patient had not suffered from arthritis, but many cases of metastatic ocular inflammation, whether they be keratitis or iritis, may occur without the presence of arthritis.

Dr. Posey referred at some length to the late John Griffiths' observations of ocular complications representing the sequels of gonorrhea, saying that this author thought the iritis which occurred in some subjects, even years after a urethritis, was due to that cause. He referred, however, to the observations of other British authors, particularly Collins, of the influence of gout in these cases and the necessity of taking that disease into consideration in each instance when dealing with the etiology of iritis. He pointed out that it has long been known that arthritis is particularly liable to involve gonorrheal subjects who are gouty, and his own views coincided with those of Collins, that where inflammations of the eye did arise years after gonorrhea, it was probable that they were of gouty rather than of gonorrheal origin. The unusual vesicular type of the inflammation which was observed in the case under discussion, its resemblance to those reported by Byers, as well as the other factors, led him to believe that the inflammation of the cornea in the case under discussion had in all probability been excited by the micrococci or toxins of gonorrhea.

T. B. HOLLOWAY, M. D., Clerk.

THE XVI INTERNATIONAL MEDICAL CONGRESS.

The direction of the XVI International Medical Congress at Budapest (from the 29th of August to the 4th of September this year) has just begun the dispatch of the Second Circular. This considerable pamphlet, besides its scientific portion, contains a detailed program of the Congress Excursions, and all the necessary information with regard to traveling and accommodation. It may also be expressly observed here that the question of lodgings has been settled, so that every one taking part in the Congress may without difficulty find suitable accommodation. The membership subscription is 25 crowns; wives and daughters of members 12.50. Remittances should be sent to the Treasurer of the Congress, Professor Julius Elischer, VIII, Esterházy-utca 7, Budapest. It may happen that, although upwards of 20,000 copies of the program have been dispatched, the majority of our colleagues may not be provided with the same. The direction of the Congress therefore respectfully requests them to regard this communication as an invitation to take part in the Congress. All who may be interested will, on application to the direction of the Congress, immediately receive a program and all their inquiries and wishes will be most promptly attended to. Address: Office of the XVI International Medical Congress, VI, Esterházy-utca 7, Budapest.

Notes and News

Dr. K. Seggel, an ophthalmologist of Munich, Ger., is dead.

Dr. Ulysses S. Grim of Chicago sailed for Europe May 4th.

Dr. Wm. Whayne died recently at his home in Pueblo, Colo.

Dr. Louis Stern of San Francisco died April 7th, aged 55 years.

The Illinois optometry bill was defeated both in the House and Senate.

Dr. W. Beaupre of Quebec, Can., has recently returned from a winter in Egypt.

Dr. V. Philamow has qualified as privatdocent in ophthalmology at Odessa.

The late William Henszey of Philadelphia bequeathed \$10,000 to Wills Eye Hospital.

Prof. Dr. Ludwig Laqueur of Strassburg, Ger., died recently at the age of 70 years.

Dr. F. O. Morrison of Indianapolis expects to spend the summer in European travel.

Professor Krückow of Moskow, editor of the *Westnik Ophthalmologie*, died recently.

Dr. H. Bert Ellis has been elected a delegate to the American Medical Association from California.

Dr. Arnold Knapp of New York was married April 14th to Miss Julia James Long, at Camden, S. C.

Mr. Arthur Fells has been appointed to the staff of the Bristol (Eng.) Eye Dispensary as a clinical assistant.

Frank L. Thomas has been added to the staff of the North Devon (Eng.) Infirmary as attending ophthalmic surgeon.

Dr. Geo. H. Price of Nashville, Tenn., was recently re-elected secretary of the Tennessee State Medical Association.

The Rhode Island Medical Society has formally denounced the optometry bill presented in the state legislature.

Dr. Chas. E. Shannon has been made ophthalmologist to the Seybert Home for Poor Children in Philadelphia.

Mr. Charles Baker, formerly on the staff of the Royal Eye Hospital, Southwark, London, died recently, aged 44 years.

Dr. John Ordronaux of New York bequeathed \$5,000 to the Society for the Relief of the Destitute Blind of New York City.

Dr. Thomas A. Woodruff of Chicago has been re-elected president of the Calumet Club.

Dr. Lucien Howe of Buffalo was made one of the vice presidents of the International Ophthalmological Congress at the Naples meeting.

The South Baltimore (Md.) Eye, Ear and Throat Hospital has applied for an increase in the state appropriation from \$2,000 to \$6,000.

Dr. Harry Friedenwald of Baltimore has been appointed Consulting Ophthalmologist to the New Sydenham Hospital for infectious diseases.

Dr. Albert Lesshaft of Gorlitz, Ger., who, with Dr. Zimmermann, conducted a private eye hospital and clinic in that city, is dead.

Dr. C. Winthrop has been appointed to have charge of the eye, ear, nose and throat department of the Mobile City Hospital for the six months beginning April 1, 1909.

Dr. Paul Hethey has been given the title of professor of ophthalmology at the University of Berlin, where he formerly held an assistantship.

A prominent English oculist, Charles Bell Taylor, died April 13, 1909, at the age of 80 years, at his home, Beechwood Hall, Mapperly Park, Nottingham. He was an exceptionally clever operator, but a very eccentric man.

At the meeting of the Colorado Ophthalmological Society in Denver, held April 17, 1909, Dr. Chas. E. Walker was elected Chairman of the Executive Committee. Ex officio members are Dr. G. F. Libby, secretary, and Dr. Melville Black, treasurer.

The medical alumni of the University of Pennsylvania at their annual meeting elected Dr. Edward Jackson of Denver one of the vice-presidents, and Dr. Edward Shumway of Philadelphia secretary-treasurer.

The British Medical Society holds its seventy-seventh annual meeting this year in Belfast. The president of the section of ophthalmology is John Walton Browne of Belfast.

The new home of the New York Institution for the Blind will be in Bronxville Village, where 51 acres have been purchased. The new building will be ready for occupancy in about two years.

Dr. Chas. A. Oliver of Philadelphia, has been recently elected corresponding member of the "Sociedad de Estudios Clinicos de la Habana."

Dr. and Mrs. Frederick Bentley of Seattle, Wash., were recent visitors in Chicago. They have just completed a trip around the world, undertaken for the chief purpose of studying the new cataract operation of Major Henry Smith, at Jullunder, India.

Dr. Derrick T. Vail of Cincinnati and Dr. D. W. Greene of Dayton, Ohio, expect to sail from Quebec July 2, 1909, to attend the International Medical Congress at Budapest, Hungary. They will then go to Jullunder, India, to work with Major Smith and study his capsule extraction method.

The Pennsylvania optometry bill failed to pass owing to a counter-medical bill which aimed to put all the various practitioners of medicine under the control of one board of medical examiners. This bill was itself finally lost in the House after having passed the Senate in an amended form.

The *Ophthalmoscope* reports a clever fraud recently exposed in England. Two men in the guise of medical inspectors examined the school children of the Cumberland Education Authority and obtained money from parents of children who were supposed to require glasses, the glasses to be sent on as soon as they could be made.

The new Eye Hospital of the University of Munich has been completed, and is said to be the most ideal hospital for its purpose in the world. A garden surrounds the building, and may be reached from the individual rooms. Operative and infectious cases are isolated, the latter having a special pavilion. Prof. Dr. Eversbush is director.

The Chicago Ophthalmological Society unanimously adopted the resolution presented by Dr. Casey Wood upon the occasion of the death of Dr. Ferdinand Carl Hotz, expressing their appreciation of Dr. Hotz' contributions to ophthalmology and the great services rendered the Society by one who was twice its president. A copy of the resolution was engrossed and presented to the family of Dr. Hotz.

The Medical College of Ohio and the Miami Medical College have been merged, and are now in affiliation with the University of Cincinnati, being known as the Ohio-Miami Medical College. The faculty for ophthalmology is as follows: Drs. Robert Sattler, Derrick T. Vail, Stephen C. Ayres, Walter Forhheimer, Charles W. Tangeman. The instructors for this department are: Drs. Frederick W. Lamb, Wylie McL. Ayres and Victor Ray, and assistant instructors are Drs. John Ranly, Frank B. Cross and Michael Behrman.

Dr. Hotz died at his home near Chicago, Morton Grove, Ill., on March 21st, from pneumonia complicated by heart disease. Dr. Hotz, after a thorough apprenticeship under the most famous European teachers, located in Chicago in 1869, where he was appointed oculist to the Cook County Hospital and the Illinois Charitable Eye and Ear Infirmary. In 1898 he was made professor of ophthalmology and otology of Rush Medical College. He was one of the founders of the Chicago Ophthalmological Society, and was associated with the OPTHALMIC RECORD in its early days as one of the editors. Dr. Hotz' fame will doubtless rest chiefly upon the very ingenious plastic operations upon the eyelids which have made his name familiar throughout the civilized world.

The letter given below was printed in the *Journal of the American Medical Association*, and as opticians generally are making active use of Dr. Roosa's statements in defense of their optometry bills, it seems appropriate to publish this letter again so that ophthalmologists may not be ignorant of the harm done by such loose general statements:

To the Editor:—"Say nothing but good of the dead," is good advice; yet I feel that the article by the late Dr. St. John Roosa *The Journal*, February 13, 1909, p. 543) should be criticized.

I do not think that Dr. St. John Roosa was right when he said: "An eye with a moderate degree of hypermetropia without corneal astigmatism, other conditions being favorable, will do its work in a thoroughly satisfactory manner." I often have patients with moderate hypermetropia, without any corneal astigmatism, in whom the general health is good and who yet suffer from severe and intolerable headaches. I recently had as a patient a dental student who had one diopter of hypermetropia without any corneal astigmatism and who was in good health, but suffered from constant headaches that interfered with his work. He was entirely relieved of his headaches by plus 0.75 spheres for each eye.

Nor can I endorse the statement that "if glasses do not improve the vision * * * they are absolutely of no use." The patient whose case I just cited above had no improvement in vision with his glasses, as his vision was good without glasses, and this is the case with most hypermetropes of moderate degree and without corneal astigmatism.

I do not believe that Donders said the last word on refraction; I think that a great deal is yet to be learned in regard to refraction.

There are very few, if any, who will claim to get good results without mydriatics and with ophthalmometers, which Dr. Roosa recommended so highly. In the case that I have just cited of the dental student, the refraction of the eye had been determined several times by some one who used an ophthalmometer, and the patient was wearing weak compounds when he came to me with his severe headaches. Reverting to the statement that "if glasses do not improve the vision * * * they are absolutely of no use," it may be said that just this idea is the source of trouble in the cases of many school children who suffer from hypermetropia. They have good vision without glasses, and, if they are examined by some one who is not a competent oculist, are dismissed with the statement that their eyes are all right.

Articles like that by Dr. Roosa have a bad influence on the general practitioner and have a tendency to encourage opticians and the traveling spectacle vendor.

M. MORGAN CLOUD, Los Angeles, Cal.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A.M.	Richard S. Pattillo (P.-G.) J. F. Burkholder (E. E. N. T.)	G. W. Mahoney (Pol.) Geo. F. Suker (P.-G.) Oliver Tydings (E. E. N. T.)	E. J. Brown (E. E. N. T.)	G. W. Mahoney (Pol.) Richard S. Pattillo (P.-G.) J. F. Burkholder (E. E. N. T.)	Richard S. Pattillo (P.-G.) Oliver Tydings (E. E. N. T.)	G. W. Mahoney (Pol.) E. J. Brown (E. E. N. T.)
10 A.M.	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	E. J. Brown (E. E. N. T.)	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)
	Brown Puscey, N.W.U. Every day, 10-12 A.M.					
11 A.M.	H. W. Woodruff (E. E. N. T.)	A. G. Wippert (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	A. G. Wippert (E. E. N. T.)	H. W. Woodruff (E. E. N. T.)	A. G. Wippert (E. E. N. T.)
1 P.M.		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)
2 P.M.	E. V. L. Brown (Inf.) E. J. Gardner (E. E. N. T.) Thos. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) Wm. E. Gamble (Inf.) N. E. Remmen (Inf.) D. A. Payne (Ills. Med.) Emily Selby (Inf.) Wm. H. Wilder (Inf.) *Wm. E. Phillips (Inf.) *H. B. Williams (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Thos. H. Lebensohn (Inf.) Wm. E. Gamble (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Inf.) *Wm. E. Phillips (Inf.) *H. B. Williams (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) W. A. Fisher (E. E. N. T.) W. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Inf.) *Wm. E. Phillips (Inf.) *H. B. Williams (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) *Frank Alipert (St. Luke's) *Frank Brawley (St. Luke's) Thos. Faith (E. E. N. T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) N. A. Young (Inf.) E. J. Gardner (E. E. N. T.) *Paul Guilford (St. Luke's) *Casey Wood (St. Luke's) *T. A. Woodruff (St. Luke's) J. B. Loring (Inf.) D. A. Payne (Ills. Med.) F. A. Phillips (Inf.) *Wm. H. Wilder (Inf.) H. B. Williams (Inf.) Francis Lane (Rush) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) H. W. Woodruff (Inf.) N. A. Young (Inf.) J. B. Loring (P. & S.) E. K. Findlay (P. & S.) *Oscar Dodd (Inf.) Thos. Faith (E. E. N. T.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) E. K. Findlay (Inf.) W. A. Fisher (E. E. N. T.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) D. A. Payne (Ills. Med.) F. A. Phillips (Inf.) *Wm. H. Wilder (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)
3 P.M.	W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)	H. H. Brown (Ills. Med.)	*I. E. Harper (P. & S.) *W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)		W. Allen Barr (C.C.S.)	Geo. F. Suker (P.-G.)
4 P.M.	W. F. Coleman (P.-G.)	C. W. Hawley (P.-G.)	G. F. Suker (P.-G.)	C. W. Hawley (P.-G.)	W. F. Coleman (P.-G.) Brown Puscey (County)	

*Special operative eye clinics.

ABBREVIATIONS:

C. C. S.: Chicago Clinical School, 819 W. Harrison Street.	County: Cook County Hospital, W. Harrison and Honore Streets.	Pol.: Chicago Policlinic and Hospi- tal, 174 E. Chicago Avenue.	Rush: Rush Medical College, W. Harrison and Wood Streets.
E. E. N. T.: Chicago Eye, Ear, Nose and Throat College, Washington Franklin Streets. Clinics all day.	Ills. Med.: Illinois Medical College, 182 Washington Blvd.	P.-G.: Post-Graduate Medical School of Chicago, 2400 Dearborn Street.	St. Luke's: St. Luke's Hospital, 1416 Indiana Avenue.
	Inf.: Illinois Charitable Eye and Ear Infirmary, Peoria and Adams Streets.	N. W. U.: Northwestern University, 2431 Dearborn Street.	

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ROENTGEN RAY FLASHES OR INTERMITTENT X-RAYS IN THE TREATMENT OF EYE DISEASES WITH REPORT OF CASES.

BY DAVID H. COOVER, M. D.

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The *modus operandi* of Roentgen ray flashes, or intermittent X-ray, has been pretty thoroughly worked out by Cook of New York, whose recent communications on the subject have attracted the attention of all X-ray experts. The field seems unlimited, but it would appear that its application in the various diseases of the eye will eventually be its chief therapeutic value and it is possible that if its use is begun in the early and acute stages of many previously considered incurable affections of the eye, it may prevent those processes, which inevitably lead to total loss of vision.

It is not within the scope of this paper to give an exhaustive resume of the action of the intermittent ray. It is a proven fact that radiant energy has four separate therapeutic properties just the same as electrical, mechanical, chemical and heat energy—sedative, stimulant, irritant and escharotic. In the intermittent ray we are able to separate the purely stimulating from the irritative action, and experience has shown that in so doing the regenerative action has been increased. Cook states that: "The degenerative action of the continuous and the regenerative action of the intermittent rays were first demonstrated in the eye.

"If a cataract approaching maturity was exposed to the continuous rays, an ephemeral stimulation and improvement in vision was sooner or later followed by ripening through hyper-stimulation

or irritation. This discovery lead to the development of a technique for maturing cataract for extraction. With flashes, however, although using much greater amperage, irritation and ripening were avoided in such cases, and in incipient cataract not only a purely stimulating and regenerating action was invariably obtained with more or less improvement in vision, but this effect could be maintained throughout the entire course of treatment."

The writer has had no experience with it in incipient cataract, but has proved its regenerative effect in other diseased conditions of the eye. In a case of extensive corneal ulcer (a report of which follows), new cells were formed and healing took place rapidly and without interruption under the sole application of the intermittent ray. In corneal opacities, the process of absorption is brought about as the result of an indirect influence on the corneal cells and hyperemia of the normal blood vessels that furnish those tissues with nutriment. In fact, an increased hyperemia of the blood vessels of the eye was observed in every case treated. The conjunctival vessels were more congested immediately following each application, the congestion remaining for some minutes and if there were an already existing peri-corneal injection, it was always increased. An ophthalmoscopic examination of the fundus after an application showed an increase in the calibre of the retinal vessels and this was particularly marked in those cases of atrophy of the optic nerve, when the shrunken vessels lying on the white disc made the recognition of their calibre comparatively easy.

Regeneration is therefore brought about through lowering of the tension, improvement of the circulation and an increased leucocytosis. Such has been done in muscle, nerve, bone, vascular, epithelial and glandular structures. In the eye it can be accomplished in the optic nerve, cornea, crystalline lens, choroid, retina and iris. In addition to the local effect, there is a general one of a tonic nature, cellular metabolism is increased and all the vital processes are stimulated, a condition which is necessary to the cure of any local degeneration.

Thus the action is very different from the accumulative and degenerative one of the continuous rays where we have the regenerative process occurring only in the primary stage. This is illustrated in the effect of the continuous current on blood forming organs; there being first an increase of the red and white blood corpuscles (especially the latter) and later degeneration is evidenced by a decrease.

Cases are reported where blindness and deafness have followed a prolonged treatment with the continuous ray for recurrent cancer in close proximity to the eye and ear. Professor A. Birch-Hirschfeld of Leipsic reports the anatomical findings in an eye, which had been exposed to prolonged radiation during the treatment of carcinoma of the temple with the X-ray. The principal changes were degeneration of the endothelium and vacuolization in the vessels of the iris and retina. The ganglion cells of the retina showed vacuolization, solution of chromatin, shrinking of the nuclei and cell degeneration. The changes were especially marked in the macular region, where there was pronounced cystoid degeneration. There were no signs of inflammation. He reports other cases, and says that in animal experimentation he noted the slow development of such changes. Selenowsky, also in experiments with rabbits, has demonstrated the danger of excessive or careless use of the continuous X-ray.

Roentgen-ray flashes are made by an apparatus especially designed for the purpose. It consists of a small motor, a condenser, and a moving shaft. By the aid of a regulator, from forty to six hundred flashes can be given per minute. The number of flashes can be counted, which is the best procedure in treating the eye or the time can be measured having previously estimated the number of flashes per minute. A record should also be kept of the emperage and the distance of the tube. Experience has proved that the best results are obtained in eye conditions by the minimum number of flashes, seventy-five to one hundred and fifty per minute, and a working distance from the tube of fifteen inches. In children and young adults the body is placed behind a lead screen, but adjacent parts of the face are not protected unless the patient is a pronounced blond and shows a decided susceptibility to the rays. More uniformity results in the quality of the rays with the intermittent ray and there is a saving in tubes, coil and current.

Case 1—Corneal Ulcer.

Jan. 4, 1909. J. W. aged 37. Three weeks ago was struck in O. S. by a twig. The next day the eye began to inflame and pain him. It continued to get worse and the pain increased. Was treated but received no benefit. Examination showed severe congestion and swelling of the ocular conjunctiva, a large corneal ulcer, involving four-fifths of the cornea, shallow anterior chamber, and ballooned iris. V. = moving objects. Began intermittent

X-ray treatment. There was an increased congestion of all the ocular tissues following the exposure. Increase in the peri-corneal injection was particularly marked. No other treatment was given.

Jan. 5. Condition improved. The patient states that he has had no pain since the treatment. The eye felt more comfortable in every way, and as he expressed it, "felt stronger." Treatment. Intermittent X-ray.

Jan. 6. The hazy portion of the cornea appeared much clearer, less chemosis but peri-corneal injection increased. Treatment. Intermittent X-ray.

Jan. 7. Anterior chamber of normal depth. Counts fingers at four inches.

Treatments were given on the 8, 9, 11, 15, 20, 22, and 27. Immediately following each exposure, the congestion of the parts was slightly increased. The ulcer diminished in size and the vision steadily improved. The last exposure was made Feb. 1, at which time the ulcer had entirely healed and the infiltration between the layers of the cornea was almost completely absorbed. The patient considered himself so nearly well that he failed to appear for further treatment.

Case 2—Serous Iritis.

Jan. 4, 1909. J. B. aged 47. Gives a history of O. D. having been inflamed for four days. Had iritis in same eye fifteen years ago. Has been suffering some pain, mostly at night. Examination showed blood vessels of conjunctiva injected, cornea hazy, beginning exudate in the pupillary space and slight ciliary tenderness. Pupil reacts to light. V. = shadows. Treatment. Atropin.

Jan. 6. Exudate and pain increased.

Jan. 7. Began the Intermittent X-ray.

Jan. 8. Condition improved. Treatment. Intermittent X-ray.

Jan. 9. Exudate in pupillary space has almost disappeared. Cornea much clearer and pain less. Treatment. Intermittent X-ray.

Jan. 11. Exudate entirely gone, ciliary injection less, and cornea clear. Treatment. Intermittent X-ray.

The case was treated on the 13, 15, and 16, with the ray, and kept under observation until the 27, when he was discharged cured.

This patient had both tuberculosis and syphilis, and was not given any constitutional treatment.

Case 3—Optic Atrophy and Nystagmus.

Jan. 11, 1909. Miss A. H. aged 28. When two and one-half years of age, received a blow on the head. Sometime afterwards, parents noticed that she seemed unable to see. Does not remember of ever having seen. Light perception poor. Examination showed divergent strabismus in O. S. Both discs white. Treatment. Intermittent X-ray.

At the end of the third treatment, patient stated that she could see large objects. Seems to have increased field of vision. Was treated with the ray at regular intervals and after each exposure, large objects became clearer and nystagmus less. Complained of the daylight hurting her eyes. At the present time V. = O. D. 20 M. letter at six inches. O. S. Nil.

Case 4—Optic Atrophy.

Dec. 4, 1908. J. L. aged 40. Nov. 3, 1906, was blown up in a tunnel while picking out a miss-shot. O. S. was so badly injured that it had to be enucleated. O. D. cornea peppered, conjunctiva lacerated, iris irregular, lens dislocated upwards and backwards. V. = fingers at six inches. Cataract followed. May 18, 1908. Following the use of dionin, lens was entirely absorbed. Small piece of capsule in the upper third of pupillary space. Cornea hazy, from the small particles of powder imbedded in it. At this time V. = 6/20 + 10 D. Sept. 11, 1908. Since July, vision has been steadily failing. F. V. contracted. Counts fingers at one foot. Optic disc white and blood vessels contracted. Present date, vision reduced to light preception, and gradually diminishing.

Jan. 4, 1909. After seven treatments with Intermittent X-ray V. = 60 M. letter at 10 inches, and increased F. V. followed each exposure.

Jan. 8, 1909. Patient saw the food on his plate for the first time.

Jan. 9, V. = 36 M. letter at six inches. Cornea and media clearing slightly. Blood vessels of the disc increasing some in calibre.

At present time, patient has had in all twenty-one treatments. V. = 30 M. letter at twelve inches, and sees objects more plainly.

Case 5—Cyclitis.

Jan. 4, 1909. Mrs. C. aged 65. When a child, lost O. D. through an accident. About eighteen years ago, O. S. was oper-

ated on for cataract, following which she had a plastic iritis, and vision was lost. Some years afterwards, an iridectomy was performed. Cyclitis followed. Later on an iridotomy was made, and patient was put on K. I. for months. No improvement. V.=L. P. Began Intermittent X-ray. At the end of sixth treatment, patient could see moving objects at fifteen inches. Up to present time has had ten treatments. Following each treatment, patient stated that she could see moving objects more distinctly. Vitreous opacities cleared up to such an extent that could get red reflex.

Case 6—Optic Atrophy.

Dec. 13, 1908. Mrs. A. R. aged 21. Received a blow in O. D. ten years ago, and has been unable to see out of the eye since the injury. Vision gradually failed in O. S. also. V. O. D. nil, O. S. 6/36. Examination showed white discs and shrunken blood vessels.

Dec. 15. Began Intermittent X-ray.

Dec. 17. V.=6/20. At the end of the fourth treatment V.=O. S. 6/20, at the end of the eighth. 6/15, and at the end of the twelfth 6/12 plus, which remains.

Case 7—Dendritic Ulcer of the Cornea.

Feb. 18, 1909. J. H. aged 60. Says O. D. has been inflamed for about a month. No history of injury, syphilis, or rheumatism. Pain more severe at night. Examination showed entire cornea hazy, centrally located dendritic ulcer, peri-corneal injection, contracted pupil, and ciliary tenderness. O. D. large leucoma. Treatment. Atropin.

Feb. 19.—Pupil fully dilated, otherwise conditions same. Treatment. Intermittent X-ray.

Feb. 20. Reports no pain, and ulcer shows slight improvement. Treatment. Intermittent X-ray.

After ten more exposures, ulcer healed leaving a very slight opacity.

Case 8—Corneal Ulcers.

Jan. 7, 1909. Mrs. C. aged 23. Six months ago, O. S. became inflamed. Had photophobia and scratching sensations. Condition has grown steadily worse in spite of treatment. Examination showed O. D. small corneal ulcer slightly below center, O. S. central corneal ulcer. General health poor. Treatment. Holo-

cain and atropin. Regulation treatment was carried on in the case, but condition did not improve.

Feb. 15. Began Intermittent X-ray, and after second exposure, ulcers were improved. Treatments were continued at regular intervals for three weeks and ulcers were completely healed. No constitutional treatment was given, but general health improved.

Case 9—Corneal Ulcer with Hypopyon.

Feb. 22, 1909. T. O. C. aged 72. About two weeks ago got small piece of coal in O. D. Following its removal eye became very sore. Examination showed small corneal ulcer and hypopyon. Bacteriological examination revealed a few diplococci. Began Intermittent X-ray treatment.

Feb. 26. Hypopyon has disappeared. Ulcer improved. Treatment. Intermittent X-ray. At the end of the sixth treatment the ulcer was entirely healed.

Although the cases reported are few in number, each one is typical. The corneal ulcer cases No. 1, 7, and 8, were all cured with very slight opacities resulting. No other treatment was used in cases 1, and 8, and atropin was instilled but once in case 7. In the case of serous iritis, No. 2, atropin was used, but used sparingly and as mentioned, although the patient had both syphilis and tuberculosis, no constitutional treatment was given, nor had the patient been taking any.

Case 5. Cyclitis, the patient had received no constitutional treatment for months, previous to the ray. The eye was in bad condition and little could be expected from any therapeutic measure. This case simply illustrates the stimulating power of the ray. Case 4. Optic atrophy is similar to case 5, in that the anterior structures of the eyeball was in a damaged condition and no great improvement could be expected.

Cases 3 and 6, optic atrophy are interesting in that they were not complicated by any diseased processes of the anterior structures of the eyeball and any vision resulting from a stimulation of the nerve structures could be easily recognized and recorded. Both were cases of old standing, and one is justified in concluding that if such cases respond so quickly, even if vision is not brought up to the normal, much can be expected of this treatment in beginning optic atrophy.

The writer does not submit these reports with the claim that

in the Intermittent X-rays, we have a therapeutic agent that is infallible, for the work is yet in the experimental stage. It must be remembered that sufficient time has not elapsed to prove the permanency of the results obtained in the chronic cases; and again in some instances, allowance must be made for a probable psychical effect. They are submitted as preliminary reports, and are to be taken as such until further investigation has been carried on. In the meantime, however, the results obtained are well worthy of consideration.

AN ANALYTIC CRITICISM ON THE CARDINAL LID
SYMPTOMS IN EXOPHTHALMIC GOITRE.
(BASEDOW'S DISEASE.)*

GEORGE F. SIKER, M. D.

CHICAGO, ILL.

In the entire realm of medicine there is perhaps not another disease, which, having its seat in one organ, entails such a widespread symptomatology as Basedow's disease; that is as protean even in its manifestations of a single, to say nothing of the combined category of symptoms; that so regularly and extensively involves the primal organic systems—the circulatory and nervous; and finally, that is as insidious in its onset, thought perchance it may come on by crisis in lieu of lysis. The analysis of its varied symptomatology so as to permit of its correct interpretation has earnestly and persistently engaged the clinician from the very day that its eccentric and protean manifestations were first amalgamated by Pary under the designation of what is now usually termed Basedow's disease.¹

At the very outset, it may be stated that the writer considers the homogenetic etiologic factor to be a biochemic toxic agent engendered by a perverted physiologic thyroid activity, implicating principally the cerebro-spinal and sympathetic system of nerves—whatever element or factor induces this thyroid perversion is looked upon as a heterogenetic etiologic factor. (This being the basis of argument, an endeavor is made to consistently explain the lid manifestations on this score.)

There is no justification in designating any single one nor

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1.—Though it is not in accordance with the better medical nomenclature to designate a group of symptoms constituting a disease by a personal cognomen, yet the sway of usage and custom, is difficult to overcome; in fact, a practical impossibility. Personally, the writer chooses to designate the disease by the rather complex and compound term—Hyperthyroidismic-cardio neurosis, a term at once distinctive and descriptive of the principal organs involved.

a group of ocular symptoms as pathognomonic of Basedow's disease; for, many other organic or functional disturbances, directly or indirectly involving one or both systems of nerves, may give rise to similar, if not identical, ocular symptoms, yet not materially involving the thyroid function per se beyond the bounds of normality. At least, in these lesions no tangible thyroid disturbance is at all demonstrable. Particularly must we take cognizance of the close antithetic interrelationship existing between scleroderma and myxœdema on the one hand and hysteria on the other—knowing full well that cases are on record in which a Basedow's passed over to a myxœdema, a scleroderma or vice versa. Also, the development of a true Basedow's upon a hysteria or the reverse has been frequently observed. Hence, some of these symptoms, when present or absent, have a pertinent and significant value in differential diagnosis.

Frequently the diagnosis of an early Basedow's disease is fraught with serious difficulties—to say nothing of an early differential diagnosis. Unless due attention is given to detail symptoms and to their proper recognition, as well as their relation to other distant symptoms, a diagnostic error is but the natural consequence. This point gains significance when we bear in mind that many of the eye symptoms manifest themselves at times very early, again late, regularly or irregularly, periodically or intermittently; therefore, many of us are at a loss how much intrinsic value is to be accorded them. The eye symptoms are in no manner sequential. Neither can the various ones be classified into:

(a) Prodromal.

(b) Ascendant.

(c) Descendant—as is usual in a disease with such a large train of symptoms as Basedow's. They only sustain a rather meagre relation to the prognosis in the majority of instances. An exception to this is the appearance of several of them in rapid succession, associated with some type of plegia, when they are indeed rather ominous.

It seems rather difficult to explain the specific *raison de être* for each and every lid symptom because of their interdependency. It is staunchly maintained by some observers that a degree of exophthalmos is present in every case, necessarily, therefore, playing an important role in the quasi causation or at least accentuation of many of them. Furthermore, the element of vascular con-

gestion in the orbit and palpebral muscles, independent of that obligatory for the exophthalmos itself, is a contributing etiologic factor. Finally, the role that the thyroid toxin exerts on peripheral nerves or central nerve centers, in addition to its direct influence upon muscle fibers is unquestionably of vital importance. In this connection the role that the cervical sympathetic plays is certainly not a negligible item, though some seem to think so. Again others attribute not only the lid symptoms but even the disease itself to a central nerve lesion, which view the writer can not accept because of his previous definition of the etiology.

In view of these interconflicting elements no single one can sustain the relation of *ergo hoc, propter hoc* to a specified lid symptom. But, from his own studies and observations, concludes that each of the factors above cited enters into the production of the symptoms. It is the predominance of one or more of these factors over the remainder in certain muscle groups that favors or accentuates the particular symptom in question—all based upon increased muscle tonus and sympathetic hyperirritability.

The purely intraocular symptoms are not so difficult of explanation, as the mechanical element plays no causative factor. The toxic factor understandingly explains their origin, as the true fundus changes are more frequently due to the engrafted nephritic and carido vascular lesion than to the Basedow's itself. As far as the ophthalmoplegias are concerned they unquestionably depend upon a central or nuclear lesion. These nuclear lesions are brought about by the selective tendency of the circulating toxin, independent of its direct origin. If the disease was of central origin some cases ought to present permanent lid symptoms—in the nature of a paralysis or ptosis: likewise no such disparity as to bilaterality or crossed appearance or their usual accentuation on the same side as the more involved thyroid, should obtain. But such is not the case, since no ocular symptom excepting the ophthalmoplegia and a certain amount of exophthalmos ever remain as permanent vestiges of the disease *per se*. Indeed, the view that the ophthalmoplegias, pigmentary and degenerative skin changes, and other definite paralyses are not true Basedow symptoms, but perchance incidental features of an engrafted myxœdema or scleroderma, is rapidly gaining credence.

The eye symptoms in Basedow's disease may be divided into the three following categories:

- a. Palpebral.
- b. The ocular and ocular muscle symptoms.
- c. The intraocular symptoms—including fundus changes.

Of these three classes of symptoms the first and second are of great significance and serve for the purpose of diagnosis and differential diagnosis. The symptoms of group 3 are incidental and dependent upon lesions other than the Basedow's itself. For, diabetes and Bright's diseases are rather frequent accompaniments of Basedow's and to these we can ascribe the more serious and significant intra-ocular lesions.

The cardinal lid symptoms are:

- 1. von Graefe's sign.
- 2. Stellwag sign.
- 3. Dalrymple sign.
- 4. Gifford sign.
- 5. Suker sign.
- 6. Lid quivering (lid tremor or Rosenbach's sign).

The minor ones are:

- 1. Palpebral pigmentation.
- 2. Palpebral œdema.
- 3. Loss of eye lashes and eye brows.

The second group comprises the following symptoms:

- 1. Corneal anesthesia and inflammation.
- 2. Conjunctival œdemas.
- 3. Nystagmoid movements.
- 4. Moebius sign.
- 5. Exophthalmos.
- 6. Limited rotary excursions of the eye.
- 7. Ophthalmoplegias. (Other than single muscles.)

The third group of symptoms comprise:

- 1. Retinal pulsations.
- 2. Chorioidal and retinal inflammatory disturbances.
- 3. Pupillary and accommodative disturbances.

The epiphora which frequently accompanies Basedow's disease is not dependent upon a direct thyroid disturbance but is more or less closely associated, in relation to cause and effect, with the exophthalmos, perchance the Stellwag and the von Graefe sign. For this reason it is omitted in the classification and will not be considered.

Many clinicians express the view that the lid manifestations

are in no wise influenced by the degree of the exophthalmos and wish to see as their etiologic factor a direct disturbance of nerve centers or a disturbance in the association center (hypothetical) of Sattler.² Neither of these views can consistently explain the lid symptoms. From his own observations the writer must conclude that not only all the lid symptoms but also Moebius' sign are accentuated by the exophthalmos, though indeed some of the minor symptoms are apparently dependent upon it. There is no gain-saying the fact that the cervical sympathetic nerves play a definite causative role in these symptoms. But, to ascribe their origin to a disturbance in a cerebral association center, which as yet has never been anatomically proven, but only clinically conjectured, is a round about way for Sattler to take in order to explain the lid symptoms, particularly when a more direct and substantial cause than this can be logically obtained—namely muscle hypertonus. If there were such a center, permanent lid symptoms in the nature of a lid paralysis would ensue because of its mere exhaustion. Then too, the lower lid itself ought to give evidence of disturbances in such a given center. But, there is no case on record in which any of the lid symptoms remained as a sequel or even as a direct cause of a Basedow's disease. Indeed, all of these various symptoms are of rather short duration, exceedingly irregular in their appearance and not in a strict sense sequential, consequently, not consistent with a continuous and progressive lesion of a given center. And, as for the lower lid involvement, there are no definite ones excepting a change in apposition to the globe, which is entirely dependent upon the degree of the exophthalmos.

With these few remarks we can proceed to briefly analyze the exophthalmos and, then, in detail, the lid signs: (1) von Graefe, (2) Stellwag, (3) Dalrymple, (4) Gifford, (5) Suker.

Exophthalmos.

A brief consideration of this symptom in advance of the others is necessary because of its direct bearing upon the entire group of lid symptoms. It sustains no causative relation to any of them and only serves to add to their intensities. It is absent in about 20% of the cases and is usually the last of the cardinal symptoms to appear. Like the other symptoms, it is extremely variable in its appearance, usually though, when present, it is

(2) Sattler's center: regulation of the consensual action of levator and orbicular on the one hand and the levators and depressors of the globe on the other—in addition to a reflex center disturbance—retina—5th of the cornea and conjunctiva, and the motor apparatus of the lids.

uniform in both eyes; if unilateral, then most often on the same side as the struma. The relation it sustains to the lid symptoms rests on purely mechanical principles. Not as many diverse opinions are held as to its origin as obtain for the lid symptoms. Only two causative theories are worthy of recognition and one of these has been very nearly abandoned. They are: (1) Vaso motor paralysis of the orbital vessels dependent on sympathetic interference, permitting a constant congestion and (2) eventuating a tonic contraction of Muller's orbital muscle also ascribable to sympathetic nerve irritation. Landström has demonstrated that the eye is suspended in a cylinder shaped plain muscle cone, running from the orbital septum to the equator of the globe anteriorly and following the recti muscles posteriorly to the fissure. (Ueber Morbus Basedowii—Thesis, Stockholm.³)

The latter theory because of the insignificant and practically rudimentary Müller's muscle can be discarded but not the cylinder shaped cone of Landström. The vaso-motor paralysis is the true basis for the persisting exophthalmos. When it has persisted for a considerable length of time it never disappears entirely. Should it, however, disappear, it does so before actual tissue increase has taken place within the orbit and then no doubt was dependent entirely upon the muscle contraction of this self same cylinder. In the beginning, the exophthalmos can be made to disappear by gentle and uniform backward pressure upon the globe. Should any of the lid symptoms be present then upon recession of the exophthalmos, they will be considerably modified: but upon the recurrence of the exophthalmos they again regain their full intensity of manifestation.

The exophthalmos may be the only ocular symptom present during the greater part of the course of the disease. Indeed, it usually follows the others in point of time rather than precedes them. Therefore, whatever etiologic factor it plays in producing any of the lid symptoms sinks into insignificance at the very outset. This point is always to be distinctly born in mind in discussing the lid manifestations of Basedow's.

(3) Landström's accurate finding of this cylinder shaped muscle (loc. cit.) partly explains the observations of McCallum and Cornell (The Mechanism of Exophthalmos: Med. News, Oct. 15, 1904), who produced exophthalmos by sharply and continuously stimulating the sympathetic. They removed the orbital roof and fat in a dog and upon stimulating the sympathetic observed distinct muscular contraction waves in the tissues surrounding the eye and extending as far back as the fissure. They found this tissue to be plain muscle fiber continuous with the lids in front—with numerous attachments to the orbital margins and extending to the sphenoidal fissure posteriorly. The exophthalmos produced did not continue very long because of the early muscle exhaustion. One could not produce as marked exophthalmos in man because this muscle cylinder is not as highly developed as in the lower animals.

A detailed explanation of the real anatomic origin of von Graefe's sign will concomitantly assist in fully elucidating the origin of the other lid symptoms. The lid symptoms are closely allied still not entirely dependent upon one another, yet they can be traced to mutual causes. The various factors giving rise to the several other lid symptoms practically all enter into the make up of the von Graefe's.

Von Graefe's Sign.

This most complex symptom is variously present in from 15% to 65% of the cases. It is not necessarily an early symptom, neither is it necessarily bilateral; nor is it of long duration in all cases; nor is it of any more diagnostic value than some of the others; neither is it requisite that an exophthalmos be present for the manifestation of the von Graefe's. If one sided, it is usually on the same side as the struma and not on the side opposite; but, if so, it is most frequently combined with an exophthalmos rather than without it.

As ordinarily interpreted the upper lid follows the downward rotation of the globe in a regular and even manner though somewhat later in point of time. It is usually thought that the upper lid covers as much of the cornea as in a normal state. However, as a matter of fact, these two usual conceptions are really fallacious. Though the lid is tardy in following the downward rotation of the globe, it follows the latter in a decidedly jerky manner—a so-called epileptoid movement—a tremor, if you please. Neither does the lid follow the upward rotation of the globe in a consensual and even manner, but, like unto the downward rotation, it is elevated in a jerky manner and decidedly in advance of the globe in point of time. With any degree of von Graefe's sign present, the upper lid does not cover the same corneal area as in the normal individual. Then too, it is usually thought that even during sleep the lids are not perfectly closed. This likewise is a fallacy. For, during sleep absolute muscular relaxation obtains and a perfect lid closure ensues. If not, then the palpebral aperture noticed is dependent upon the co-existing exophthalmos.

The three characteristics of the von Graefe sign are:

1. The moderate encroachment of the lid on the cornea—less than normal for that individual.
2. The jerky downward rotation, arrear in point of time to globe.

3. The jerky upward rotation in advance of globe as to time.

These three points will differentiate it from any similar lid manifestation or the so-called pseudo von Graefe, which obtains in certain types of nuclear paralyses and hysteria. The attending exophthalmos always accentuates the sign, purely on a mechanical basis. Those who do not accept this are laboring under a false apprehension of facts, as the exophthalmos invariably disturbs the association between the orbicular and levator palpebral muscles at the expense of the former. Indeed, when the von Graefe's is present without an exophthalmos, the scleral band exposed is not nearly so marked, nor is the jerky movement as pronounced. This jerky movement is perhaps the essential characteristic of the von Graefe's and is not simulated by an hysteria or nuclear paralysis. In the former the jerks, if ever present, are coarse and less in number. Then too, the upper lid encroaches the normal distance upon the cornea as in the normal eye. Furthermore, with the purely hysterical type of von Graefe's there are other pertinent stigmata. However, quite often does an hysteria develop *pari passu* with a Basedow's. In such cases it does not seem to compromise the lid symptoms but confines itself to pupillary, visual field, corneal, and accommodation manifestations. Hence, no great difficulty is encountered in a differential diagnosis. With the element of engrafted hysteria the writer has found tubular field of vision and the characteristic hysterical visual field to be rather usual. In fact, it is obligatory in every case of Basedow's to take the visual field—not because there are any significant field disturbances of the least value *pro* or *con* a diagnosis or prognosis but necessary to absolutely eliminate the element of hysteria.

There is just as much apparent misunderstanding as to the direct cause of the von Graefe's as there is about the specific etiology of the Basedow's itself. In a resume, the various views can be conveniently classified as follows:

1. The Eulenberg and Guttman view (*Die Pathologie des Sympathicus*, 1873). They regard an irritation of the sympathetic and an increased tonus in Müller's orbital muscle and the superior palpebral muscle but not in the levator as the basis of the sign. The Müller's muscle contraction causes a slight protusion of the globe thereby increasing the palpebral aperture.

This view is shared by many but does not prove up under scrutinizing investigation because (a) Müller's muscle and the

superior palpebral are in no manner the dynamic equals of the levator and the orbicular. They only serve for purposes of nicely regulating, as it were, the actions of the other two. (b) Then too, a case has been reported of Basedow's disease in which post mortem and microscopic examination failed to reveal either the superior or inferior palpebral muscles, though von Graefe's sign was present during life. (Drummond Br. Med. Journ. 1887, May 14.) (c) Furthermore, Müller's muscle in man is decidedly insignificant and practically rudimentary, not so, however, in the lower animals.

2. Sattler's co-ordination center (hypothetic) disturbance. He assumes a vaso motor center disturbance for the thyroid and the orbit on a sympathetic nerve basis and a lesion of the vagus supplying the heart as being the direct cause of Basedow's. He also assumes a disturbance in a co-ordination center as the cause of von Graefe's sign. This co-ordination center, however, is as yet a hypothetical entity and not anatomically demonstrable, though some clinical signs seem to sustain its existence. Posey seems to accept Sattler's view—but Sattler himself is beginning to recede from it as can be seen in the current Graefe-Saemisch Handbuch. He assigns for its existence the fact that ophthalmoplegias of nuclear origin accompany Basedow's disease. However, these nuclear paralyses are very exceptional while the von Graefe sign is rather the usual symptom in Basedow's. Then, too, if there were such a center why do not signs and symptoms of a paralysis show themselves as an aftermath in cases of Basedow's? Certainly a ptosis should occasionally be manifested in such cases but none has ever been recorded. Indeed, the Basedow's associated with nuclear ophthalmoplegia, in which the von Graefe sign was present, never have left any permanent lid symptoms. Furthermore, a constant tonic or excitation of this center and its correlated muscles would eventually tend to produce a paralysis. Again, the tendency for nuclear lesions is to be progressive rather than retrogressive, intermittant and periodic—such being the characteristic features of the von Graefe. (See Sattler, Graefe-Saemisch, 1st and 2d ed.)

3. Long and Pringle (Brit. Med. Journ., May, 1886) and Ferri (ref. Centralbl. prkt. Augenhk. VII. p. 678,) ascribe the Graefe to a tonic contraction of the superior levator muscle. In one of Ferri's cases—upon pressure, the globe receded to its normal position and while there, the concomitant upper lid action, in

downward rotation of the globe, was normal: but, upon the return of the exophthalmos the sign reappeared. From this he concluded that the exophthalmos and von Graefe's sign were dependent on vaso motor paralysis of the orbital vessels and hence the muscle fibers, because of vessel dilatation, were mechanically shortened though not strictly physiologically interfered with. There is ample proof of this but it does not account for the jerky movement of the lid in downward rotation or its excessive rapidity in upward rotation of the globe. They have practically stated the half truth of the real factors entering into the causation of von Graefe's sign.

4. Sharkey (ref. *Centralbl. f. prakt. Augenheilk.* XV, 336,) ingeniously explains it as follows: The orbicular muscle is the antagonist of the levator, weakened because of inactivity in Basedow's disease; thus there is an equilibrium disturbance between the two in favor of the latter, thereby allowing the levator to retract more forcibly and effectively. It is a very nice conception but hardly feasible, as in fact the orbicular is the stronger and more highly developed muscle. With an existing exophthalmos, the orbicular would at first be more stimulated to activity than the levator, as these patients show a great tendency to constantly close the eye though they have an apparent stare and prominent globes; while later, being accustomed to the effects of protusion, the closing act is less frequent and the orbicular loses its extra tonicity, thus allowing the levator to retract. Furthermore, Sharkey maintains that for the full development of the symptoms an exophthalmos is necessary. Now, clinical observations and findings have proven this not to be so as the von Graefe's sign is just as distinct in the absence of an exophthalmos, only not as accentuated.

5. Moebius (*Deut. Zeitschr. f. Nervenhk.* 1. 401,) chooses the following explanation: Increased activity and tonus of the levator muscles—both levator superioris and superior palpebral muscle. He further asserts that the Stellwag sign, i. e., infrequent and incomplete winking—is the primary symptom following this increased activity and the von Graefe's sign a sequence thereof. Moebius maintains this on the basis that the tonus of the levator is in excess of the normal one, just as in those with psychic excitation the palpebral aperture is greater than normal. Wilbrand and Saenger (*Neurologie des Auges*) endorse this view and see in this explanation a direct refutation of the Sattler's hypothetic co-ordination center.

Stellwag's Sign.

This is perhaps the most insignificant lid symptom; yet, to the writer's mind, the most difficult one as to a satisfactory explanation. The incomplete and infrequent winking must of necessity have a large latitude of interpretation since the normal act of winking itself is subject to the greatest variances as to time, rapidity, and completeness. Because of this, the real import of the Stellwag has often been lost sight of or not satisfactorily appreciated when present.

It is just as variable in its appearance as the other palpebral signs. The early observers looked upon it as one of the early lid manifestations and chose to attribute it to the corneal anesthesia or a disturbance in the reflex arc of the sympathetic, fifth, and seventh nerves. They considered either one or the other conditions not as an unusual accompaniment of Basedow's. Now, as a matter of fact the corneal anesthesia is extremely late in appearing if ever, and then only in a modified form. As Stellwag himself and other observers speak of it as an early sign, this corneal anaesthesia view is not consistent with facts—symptom first, then cause.

Moebius is inclined to assume that Stellwag's sign is a forerunner of the von Graefe; and, with the full development of the latter the former reaches its maximum intensity; while, with the disappearance of the von Graefe the Stellwag recedes as well. This is important to bear in mind as clinical observations have conclusively shown the Stellwag sign to be more often definitely associated with a von Graefe than with any other of the lid symptoms. Hence, the assumption that it is the direct antecedent of the von Graefe gains material corroboration. The Dalrymple sign (increased palpebral aperture) is in no wise directly responsible for the Stellwag. Yet, upon first thought one would think that an increased palpebral aperture, dependent upon a tonic muscular contraction, would of necessity favor infrequent, if not also incomplete winking. However, as a matter of fact, the Stellwag is but seldom associated with the Dalrymple sign, and observers do not incline to the view that the Dalrymple and Stellwag signs are as interdependent as the von Graefe and Stellwag. Wilbrand and Saenger prefer to consider the Stellwag and Dalrymple as but one symptom rather than as two distinct ones. This opinion is also emphatically shared by the writer.

If the von Graefe or Dalrymple is absent then the Stellwag sign must perforce be absent also, as then the underlying causes for the primal lid symptoms are themselves absent. Its diagnostic and prognostic significance is not very great because of the difficulty in differentiating between the normal and infrequent act of winking.⁴

It is not plausible to assume a sensory reflex disturbance on part of the cornea, retina, and conjunctiva, as the cause for the lessened winking. This explanation is not consistent with the facts as corneal anesthesia is seldom observed in Basedow's disease; and, when it does appear it is in the latter stages of the disease while the Stellwag sign is an early one. Again, if dependent on this reflex disturbance it ought to persist, at times, at least, after the disappearance of both von Graefe and Dalrymple signs. However, this finding is not a clinical observation.⁵

Dalrymple Sign.

From what has been said, it can be easily understood that the Dalrymple sign—an increased palpebral aperture—is likewise dependent upon this identical underlying muscle tonus. It is an increased tonus in the lid retractors over and above that existing in the lid contractors. The co-existent exophthalmos adds more to the effectiveness of the Dalrymple sign than to any of the others. This sign is, as the writer understands from his observation, present whenever the von Graefe obtains—or even the Stellwag sign. In fact, as stated above, he much prefers to look upon the Dalrymple sign as a part of the Stellwag. For, if considered apart from either of these it is certainly but an insignificant phenomenon and seems exceedingly difficult of explanation. A Dalrymple sign to be independent of either the von Graefe or Stellwag can only find its origin in the presence of an exophthalmos. The association with the latter is more logical because of the clinical interdependence of their manifestations. Of all the lid signs it is the most deceiving and evanescent as it is particularly difficult to establish a so-called normal lid aperture for any given individual.

(4) Stellwag himself (*Über gewisse Innervations-Störungen bei der Basedow'schen Krankheit*—Wien, Med. Jahrb. XVII, 1869) first attributed the sign to a chronic contraction of the palpebral muscle, but he soon abandoned this view because of the conflict it led him into with the von Graefe's sign.

(5) Only one case is on record in which the Stellwag sign was the only sign present. (Perregout: *Ueber Morbus Basedowii und Comestrostrengung*, *Schwabacher Aertze* XXIV, No. 11, 1894.) The writer has never seen a case with only the Stellwag and an exophthalmos present.

Gifford's Sign.

This sign is the difficult eversion of the upper lid and is supposed to occur rather early. However, the writer has not been able to verify this, having found it just as vacillating in its appearance as any of the palpebral signs. Sattler denies it any significance; in fact, he says there is no basis for its existence. However, he is in error as the sign has been observed by many able clinicians.

Gifford's sign rests upon the same basis as does the von Graefe, Stellwag and Dalrymple signs. It is not entirely dependent upon excessive stimulation of the sympathetic nerve fibers and the contraction of the superior palpebral muscle. For, when the sympathetic is stimulated, in a normal individual, it does not cause as difficult upper lid eversion as in Basedow's. The only direct influence the sympathetic has on this sign is the apparent vasomotor paralysis which it produces, thus permitting vascular engorgement of the muscles in question, thereby mechanically shortening them. In the number of cases in which it was observed by the writer, it was very definite indeed, particularly so when concomitant with the von Graefe and Stellwag signs. This sign can logically precede any of the others or develop consensually with them. It is not a spastic muscle action brought about by reflex disturbances in the attempt at everting the lid but is due to direct increased muscle tonus and the perchance anatomically shortened conjunctival fascia.

There is no more importance to be attached to the Gifford sign than to any of the others. Its diagnostic and prognostic value as a symptom is on a par with the other lid symptoms, as its very existence is due to identical factors entering into the von Graefe. Hence, no more significance can be attached to it than to the latter. This feature was overlooked by Gifford. As far as the writer's experience shows, Gifford's sign is very pronounced when associated with an exophthalmos, because an exophthalmos usually accentuates any symptom depending upon the action of the levator or orbicularis muscle. If the exophthalmos could be held responsible for any lid symptom it would be plausible to say that it gave rise to the Gifford sign; but, as with the others, the exophthalmos is only an accentuating and not an etiologic factor. With the Gifford sign the exophthalmos is often wanting.

Being usually bilateral and quite frequently appearing alone, not even accompanied by a Dalrymple, Stellwag or an exophthalmos,

the idea gains ground that it is dependent upon two factors, first, excess of normal muscle tonus in the palpebral; second, actual shortening of the conjunctival fascia and the vascular congestion thereby mechanically shortening the levator.

Suker's Sign.

This sign which the writer has the temerity of presenting is a combined palpebral and ocular symptom. It consists in this manifestation: While upon downward rotation of the globe the lower lid is gently fixed, the patient is then requested to rapidly rotate the globe upward while gentle retraction is made on the lower lid; the globe now ascends in an unsteady manner—much in the same way as the upper lid does in the von Graefe's symptom. It is needless to remark, that it likewise is dependent on the same underlying factors as the others and is markedly accentuated in the presence of an exophthalmos. It is just as variable in its appearance as any of the other symptoms and no more value is to be attached to it than to any of the preceding ones. It has been found more often in the absence of exophthalmos than with it—however, most often in conjunction with a von Graefe or Gifford.

Conclusions.

From the above description and analysis of the various signs we can with propriety discard all the various theories advanced for the causation of these signs excepting the increased muscle tonus which is brought about by the direct activity of the thyroid toxin—either by way of the nerve fibers or directly upon the muscles themselves. No doubt the individual anatomic construction of the conjunctival fascia as well as the individual size of the globe are but incidental contributing factors. Also, that the so-called Müller's muscle is not the important factor while the cylinder of plain muscle fibres springing from the septum orbitale (Landström) is all important. It can also be seen that all of the lid signs are exceedingly closely related as to the direct cause, but symptomatically independent of one another. That there is a causal relation between the Stellwag and von Graefe sign must be conceded. One sign is just as valuable as the other in all its aspects and the characteristics of all are very similar. The exophthalmos sustains a slight relation to all—a contributing factor. The vaso dilatation which necessarily results from the sympathetic interference is but a secondary consideration in each sign. The anatomic

variance in the conjunctival fascia is at no time a direct etiologic factor. Each one of the signs can be intrinsically modified by the absence or presence of an anatomical lesion.

Finally all of the lid signs are dependent upon a stimulation of the sympathetic nerve fibers and the palpebral muscles supplied by them; in addition there is a direct increased muscle tonus. This view is further substantiated by the fact that a paralysis of the sympathetic produces almost the exact opposite train of lid symptoms. Above all, it is more than passing strange that the iris seldom is involved though the sympathetic fibers are so profoundly implicated.

Lastly the writer wishes to say that literature references are rather abundant to sustain the contentions made and that his personal observations are in accord with these facts.

103 State Street.

INJURY TO THE CORNEA FROM BROKEN SPECTACLE LENS.

BY SAMUEL G. HIGGINS, M. D.,

MILWAUKEE, WIS.

The infrequency of injuries to the eyes was mentioned by Major Worthington in his report of a case. If such accidents are not uncommon they are at any rate not reported in medical literature.

The case I have is that of Miss C. K., age 18, whose right rimless glass was struck by a stone. School boys were throwing stones down the street when she walked from around the corner. The boy was not eight feet distant when the stone struck her, neither the boy nor she having seen the other until the accident. Such an accident might easily happen to anyone wearing glasses. Judging from the direction from which the stone came and the injury, it must have struck the lens at the temporal joint. There was an abrasion of the nose at the site of the spectacle bridge as though the bridge had been forced into the flesh. Only small fragments of the right lens could be found. Had she been wearing glasses with rims the force of the blow would have been transmitted more to the frame with less shattering of the glass.

The patient immediately went home to consult her father, a physician, but he being out on a call, went to a neighboring practitioner who could see nothing in the eye. There was slight pain

and a sensation of something beneath the upper lid. She reached my office within two hours of the accident, exhibiting slight conjunctival redness. On inspection I could see a triangular flap wound in the lower inner quadrant of the cornea with its apex at the margin of the pupil, each side being 4 mm. in length. With the aid of the Würdemann transilluminator in a dark room I could see a splinter of glass at the base of the flap which was not discernible by direct daylight. The instrument which I found most useful to remove the glass was the spud. By passing this beneath the flap and below the glass it was gently slipped out to the surface. The splinter was 3 mm. in length, 1 mm. of which abruptly pointed sharper than a needle point. The width was 1 mm., thickness less than $\frac{1}{2}$ mm. The eye was gently irrigated, a drop of 20 % argyrol instilled and the triangular bandage, as used by Casey Wood, was applied. In dressing ocular injuries I habitually apply between the lid edges a small amount of White's bichloride vaseline ointment. In this case I did not do so as I believe the vaseline is a foreign substance not absorbable. That the argyrol does not act in this way was evidenced next day by the dark brown closed wound. Then I used the bichloride ointment in the hopes of instilling an antiseptic which might neutralize the argyrol. Although the patient had experienced slight discomfort on the day of the injury, the following day she had a nervous shock and was confined to her bed. The eye was slightly red and she complained of some pain. Atropine was instilled. Hot boric compresses were comfortably accepted. The eye quieted within a week's time. The eye-shade was worn until the effect of the atropine had worn off and the patient wore her duplicate pair of spectacles. The formula for her glasses was:

L. E. + 1.00 sph. \bigcirc + 0.37 cyl. Ax. 90°

R. E. + 1.00 sph. \bigcirc + 0.50 cyl. Ax. 90°.

Six weeks after the injury manifest refraction of the right eye gave plus one sphere which was ordered.

An interesting phase is the persistent argyrosis which resisted the daily use of dionin solution and powder, dionin ointment with massage, and the iodides. When the right lens was changed no more treatment was given. At the present time, after six months, the disfiguring argyrol stain appears as a faint mark to be seen only on close inspection. There is not a corneal scar.

GONORRHEAL OCULAR METASTASES.

BY EDWARD STIEREN, M. D.,

PITTSBURG.

A decade ago the possibility of gonorrhea invading the system through the urethral circulation and giving rise to a metastatic inflammation in the eyes was strongly doubted by many ophthalmologists, here and abroad, and even today there are those who deny its occurrence, attributing the iritis not infrequently seen during the course of gonorrheal arthritis to a uric acid diathesis and not to the gonococcus or its toxin.

The writer confesses to a doubtful condition of mind on this subject until five years ago, when, visiting Professor Fuchs' clinic in Vienna, he was shown a case which this eminent authority pronounced to be undoubtedly due to systemic gonorrhea. The conjunctival affection which this patient presented, Fuchs asserted to be typical of no other condition, the pathognomonic symptoms being a brick-red congestion of the bulbar conjunctiva, especially marked in the lower sulcus, very little discharge but profuse lachrymation with slight chemosis of the bulbar conjunctiva, the absence of gonococci in the secretion and no involvement of the palpebral conjunctiva, in individuals suffering with either acute or chronic gonorrhea and usually with articular complications.

In Duane's recent translation of the eleventh German edition of Fuchs' Text-Book of Ophthalmology is the following:

"Nevertheless, there are really cases in which a conjunctival inflammation of a slighter kind is connected with a gonorrhea in the way of metastasis, just as arthritis and iritis sometimes complicate a gonorrhea. This metastatic mode of origin is to be understood by supposing that the gonorrheal poison has got into the circulation and is exciting inflammation in remote organs which have a predisposition for this poison. A conjunctivitis originating in this way shows the characters of a severe catarrhal conjunctivitis, with a dull injection of the eyeball like that which occurs in scleritis. On the other hand, there is no infiltration of the conjunctiva, such as occurs in acute blennorrhea, and hence the metastatic conjunctivitis runs a rapid course and leaves no sequelæ. . . . A distinguishing mark between the two diseases consists in the fact that gonococci are found in the secretion in even a light case of acute blennorrhea, as long as it is still recent, but are not found in metastatic conjunctivitis.

"As a gonorrhea of the urethra can by metastasis excite a conjunctivitis, so also, conversely, cases have been observed in which a gonorrheal arthritis, where gonococci have been demonstrated to exist in the pus, has arisen by way of metastasis from a blennorrhea of the conjunctiva.

"Cases of this sort have been known both in adults and in new-born children affected with blennorrhea."

Byers¹ has searched the literature of the past one hundred and seven years on this subject and in a classical brochure gives us the result of his labors, analyzing many reports of metastatic gonorrheal involvement of the conjunctiva, cornea, sclerotic, uveal tract, optic nerve and retina. Tenon's capsule and the lacrymal glands. In his conclusions on metastatic gonorrheal conjunctivitis he states:

"It is a well established clinical entity. The figures of Fournier and of White in regard to its frequency have been often misquoted: but it will probably be oftener met with now that it has gained for itself a wider recognition. It occurs at any time during the course of a systemic gonorrhea, but apparently more often than the other eye conditions as an initial manifestation. The infection is almost invariably bilateral and both eyes are usually simultaneously involved. The objective appearances, and the subjective symptoms differ little, if at all, from those of any so-called acute 'catarrhal' inflammations of the conjunctiva. The discharge is typically slight in amount, and always mucoid in character. Pure cases run their course in two weeks; but in thirty per cent of the patients the inflammation is complicated by affections in other coats of the eye."

Apropos of the last statement, Randolph² asserts that he has never seen a case of simple conjunctivitis as a metastatic complication of gonorrhea, observing in his experience that any approach to this condition was always followed by well-marked iritis in a few hours.

Since becoming converted to the idea of gonorrheal ocular metastasis I have observed three cases of this form of conjunctivitis and one case of apparent systemic infection during the course of ophthalmia neonatorum.

Case 1. Frank T., aged forty-two, boiler maker, had been receiving deep urethral injections of silver nitrate for a chronic gonorrhea in the genitourinary clinic of the Western Pennsylvania Medical College at varying intervals for three months. He contracted a fresh gonorrhea in August, 1904, and appeared in the eye clinic, September 24, 1904, presenting a slight edema of both bulbar conjunctivæ with marked congestion of a brick-red color and a mucoid discharge. There was considerable lachrymation but no photophobia; iris and cornea were normal. Cover glass smears stained and examined for gonococci were negative.

There were no joint complications. He was given a simple astringent collyrium and made a complete recovery of his ocular condition in a week.

Case 2. Dominick D., aged twenty-two, Italian laborer, was admitted to the Passavant Hospital in the service of Dr. C. E. VanHorne, July 28, 1906, suffering with an arthritis of both wrists and a gonorrhea of two months' duration.

Four days after admission he exhibited a chemosis of both ocular conjunctivæ with dark red congestion, particularly marked at the inner canthi and caruncles. The affection resembled patches of episcleral inflammation save that there was no pain and no photophobia. There was a slight discharge which contained no gonococci. The arthritis subsided under rest and vigorous antiphlogistic measures in three weeks, the ocular condition gradually disappearing in ten days without treatment which was designedly omitted. Repeated examinations with the ophthalmoscope showed no evidence of intraocular extension.

Case 3. H. W. DeP., aged thirty-five, manager, was referred by Dr. O. C. Gaub, February 4, 1907, presenting an intense brick-red injection of both bulbar conjunctivæ, particularly marked in the lower sulci, with no involvement of the palpebral conjunctivæ. There was profuse lachrymation with a slight discharge, cover glass smears showing the absence of gonococci. There was no pain but considerable itching of the eyes. Patient was a syphilitic and had been under treatment for a posterior urethritis for several weeks. There had never been any joint complications. Adrenalin was freely instilled into both eyes with no effect in blanching the conjunctiva, although the caruncles became quite pale. The in-

flammation entirely disappeared in two weeks under the use of a simple astringent collyrium. There was no involvement at any time of the deeper ocular tissues.

The following is the case of ophthalmia neonatorum presenting a double arthritis of the knee joints and probably an endocarditis.

V. W., aged three weeks, was referred by Dr. W. S. McCarter, March 30, 1907, with double ophthalmia neonatorum. Right cornea hazy; left cornea, ulcer extending from center of cornea internally to limbus. Cover glass smears showed gonococci in abundance. Under the classical treatment both eyes recovered, the right cornea becoming almost entirely clear, the left with a linear opacity and a central anterior synechia. April 8, at a stage of declining discharge and swelling of the lids, the infant developed a temperature of 106 degrees F. with swelling and inflammation of both knee joints, vomiting and watery stools. Under appropriate treatment the swollen joints and gastrointestinal irritation subsided, but the child repeatedly became cyanotic afterward and died in her sleep about seven months later.

She was seen by Dr. P. J. Eaton who writes: "I saw the W—— baby, the 26th of October, 1907, and saw it only once; then it was a question of feeding. The baby weighed two and a half pounds at birth, having been premature and at the time I saw it weighed nine and three quarters pounds. I should say that I saw no trace of any trouble such as you treated it for, at the time, except that it was very anemic." This was in reply to a letter asking Dr. Eaton if he had been able to diagnose an endocarditis or valvular lesion at any time.

The attacks of cyanosis and the sudden death of the child to me indicate the probability of a cardiac lesion; this is not of infrequent occurrence in systemic gonorrhea as has been observed by Harris and Dabney,³ Thayer and Lazear,⁴ Sears,⁵ Harbitz⁶ and others.

¹ A Study of the Ocular Manifestations of Systemic Gonorrhea, with Reports of Cases of This Nature. Studies from the Royal Victoria Hospital, Montreal, Vol. II, No. 2.

² Transactions, Section on Ophthalmology, A. M. A., 1907, p. 187.

³ Report upon a Case of Gonorrheal Endocarditis in a Patient Dying in the Puerperium, etc., *Johns Hopkins Hospital Bulletin*, March, 1901.

⁴ *Journal Experimental Medicine*, January, 1899.

⁵ Medical and Surgical Reports, Boston City Hospital, 1899.

⁶ *Deutsch Med. Wochenschr.*, Vol. XXV, pp. 121-124.

A STANDARD TEST-OBJECT FOR DETERMINING THE NEAR POINT AND THE RANGE OF ACCOMMODATION.

BY ALEXANDER DUANE, M. D.

NEW YORK.

We have no standard test-object for measuring the accommodation such as we have for measuring the vision. Yet it takes but very little experience to show the necessity of such a test-object. Fine print ordinarily used is much too coarse, for nearly everyone with ordinary good sight can read the letters within the real near point of distinct vision. Hence, if we measure the range of accommodation with fine print we get a value which is too great—in the case of young persons, much too great.

The same is true of a good many other objects which suggest themselves or which have been employed.

For two years I have been experimenting with various tests. It first seemed as if a pair of dots set close together would answer. When these are brought within the near point they blur into one, so that our question is simply "Tell me just when you see one dot and when you see two?" This, however, proved not quite satisfactory, since there was an appreciable range between the point where the dots began to blur and the point where they blended into one. Then congeries of dots, lines, double lines, crosses, and other geometrical figures were tried and rejected after laborious experimentation. As a result of a good many trials, the following principles were found to hold:

1. The test-object must be very fine and sharp.
2. There must be very little white about it, otherwise the sight becomes dazzled quickly.
3. For the same reason, there also must be no shiny surface about the object. The background on which it is placed should be dead black. Velvet, being almost the only surface which gives a deep black absolutely free from shine, is the ideal background.
4. In the test-object itself, to secure the best results, there must be a definite relation between the areas of the black and white portions.

The outcome of this experimentation is the following test-object, which seems to answer the requirements fully.

A disc, 38 mm. in diameter and covered with velvet, is set in a ring like that in which the glasses of the trial case are mounted. The ring and its handle are blackened. On the center of the disc is glued a white card 3 mm. by 1.25 mm., which is exactly bisected by an engraved black line 3 mm. long and 0.2 mm. thick. This line



Fig. 1. Test Disc.

For the sake of distinctness, the fine black line bisecting the white parallelogram in the centre of the disc is made about twice as thick in the cut as it is in reality. The dimensions of the white parallelogram are 3×1.25 mm., those of the black line are 3×0.2 mm.

must be very sharp, even, and free from any slight irregularities. To determine this, it should be examined with a strong magnifying glass, and any sample, even slightly defective, should be rejected.

The test is employed in conjunction with a Prince's rule, which should have a dull dark surface instead of being polished, as usual. The card is brought up until the engraved line blurs, then withdrawn till it is clear, then carried back and forth once or twice, until we ascertain the precise point at which blurring just begins. This will be the near point. The corresponding accommodation in D is taken off from the rule. Usually several tests are required. Of course, to get at the true finding, it is necessary that the refraction should be accurately and fully corrected. In the case of presbyopia a convex glass of 1 or 2 D. must be added to the distance-correction, and the near point determined with this addition. From

the corresponding value, read off from the scale, must be subtracted the value of the glass we have added.

The test should be made by daylight. The patient with one eye covered is placed with his back to the window, in such a way that a diffuse but not a dazzling light falls on the object. Care should be taken that there are no dazzling lights in front of or alongside the test-object. In looking steadily at the latter, the eye readily tires. If it does so, a moment's rest should be allowed.

It is particularly important that the patient should be told precisely what he is to see and that he should be urged to concentrate his gaze upon the test line, so as to accommodate with all his might. It is important also that measurement should always be made from the same point. For reasons elsewhere detailed,* I prefer to make the measurement from the anterior focus of the eye (or from a point 13 mm. in front of the cornea).

If the test-line is held alternately parallel and at right angles to the axis of the patient's astigmatism, some idea may be obtained whether the astigmatism is perfectly corrected or not. If not, his near point for one position of the line should be slightly different from the near point for the other.

I have with some success used the test-line as a means of exercising the accommodation. In neurasthenics and others with subnormal accommodation, systematic practice in approximating the line until the nearest possible point of distinct vision has been reached, has caused progressive approximation of the near point and an improvement in asthenopic symptoms. Such exercise should be done several times a day.

The test-object is confidently recommended as a serviceable one. We should certainly have *some* uniform test; otherwise our results will not be comparable. Until a better object is devised, I would strongly advise the employment of the one here shown.

The disc as above described can be had from Gall & Lembke, 1 West 42d street, New York.

Editorial

ON THE FRENCH AND GERMAN MISUSE OF THE TERMS SYMPATHIZING, SYMPATHIZED AND SYMPATHY.

In connection with sympathetic ophthalmia, we are threatened with a serious confusion of terms. For quite a number of years the French and the German oculists (and for all I know, other Continentals) have been using the term "sympathize" in exactly the opposite sense to that in which it is used in English. They speak of the first affected eye as *sympathisant*, or *das sympathisirende Auge*; and of the second eye as *l'oeil sympathisé* or *das sympathisirte Auge*. If this distortion of meaning could be confined to their own languages, it would matter little; but owing to the fact that many of the reviews and abstracts are being written, in the United States, by foreigners with an inevitably incomplete knowledge of English, the European misuse (from our standpoint) of the term "sympathizing" is occurring in our ophthalmic journals with increasing frequency. English-speaking readers and editors should be on their guard against this error. By a careful use of the blue pencil, they can prevent the confusion from becoming serious; but the vigilance will have to be continued indefinitely unless continental authors will reform their practice.

Apparently the practice is a somewhat modern one. In De Wecker and Landolt's large treatise, published in 1886, De Wecker does not follow it. He speaks of the exciting eye as "*l'oeil qui a transmis—une irritation*," or "*l'oeil d'ou est partie la transmission*;" and of the second eye as "*le congénère*." It is also apparently unknown to Meyer who, in his text-book of 1887, refers to the exciting eye as "*l'oeil qui a causé l'affection sympathique*;" or simply as "*le première oeil*."

The text-book of Panas (Paris, 1894), however, was apparently written in the transition period, for he speaks of the exciting eye as "*l'oeil traumatisé*," "*le premier oeil*" and "*l'oeil sympathisant*" all in one paragraph. The second eye is referred to, partly as "*le congénère*," and partly as "*l'oeil sympathisé*." The Germans seem to have begun the practice somewhat later than the French, and perhaps simply adopted it from them. I have not found it in the writers of the early nineties, but for the last few years the fashion has been increasing in favor with the Germans also; and in the latest important German text-book, edited by Axenfeld

(Jena, 1909). Schirmer not only speaks of the first and second eyes, respectively, as the sympathizing and the sympathized eyes, but he speaks of suppurative inflammations and especially panophthalmitis as diseases which seldom "sympathize": meaning that they seldom cause sympathetic ophthalmia! He also speaks of inflamed, injured eyes as "*sympathiefähig*" (i. e., capable of sympathy); meaning thereby that they may cause sympathetic ophthalmia.

In searching for ground for this practice, the only shadow of an excuse that I have found is that the Greeks, according to Liddell and Scott, sometimes used the word (*συμπαθής*), to mean exciting sympathy; but the Greek verb from which sympathize is derived is used as we use it, intransitively. The only two large French dictionaries that I have access to, both give to *sympathiser* the same meaning that we have. The German dictionaries either do not give the word or give it the ordinary meaning; and so far as ophthalmological German is concerned there is certainly no better authority than Hirschberg, and he says in his Dictionary of Ophthalmology: "In the classical case [of S. O.] the first injured eye is called the inducing; the second, affected; however, the induced or sympathizing eye." Finally if any nation has a right to dictate as to how sympathizing should be used in this connection, it is the British: for Mackenzie was the first to give sympathetic ophthalmia a name and a perfectly well recognized place in our science. In view of these facts, will not our French and German colleagues discontinue this confusing practice? Perhaps it is too much to be hoped, but it certainly is to be piously wished.

H. GIFFORD.

Reviews

Observation of Experimentally Induced Choked Disc.

Cushing, Harvey and Bordley, Jr., Jas. (Hopkins Bulletin, April, 1909): The authors use the term "choked disc" to express the characteristic changes in the eye grounds which accompany cerebral tumors. They state that while the term is not entirely satis-

*Trans. Am. Ophth. Soc., 1908.

factory in that it leaves retinal edema and other changes, especially the degenerative ones, out of consideration, it is expressive. It was introduced as the English equivalent for von Graefe's original designation *Stauungspapille* and there would be further reason for its appropriateness could it be conclusively shown by experiment that all gradations of the process may represent the mechanical effects of increased intracranial pressure.

"The authors admit a prejudice in favor of a mechanical explanation before their experimental work was undertaken. This was the result of an unusual experience with a long series of clinical cases now embracing over 400 instances of what they are pleased to call choked disc, many of the observations being difficult to explain on any other basis.

"These clinical observations are divided into three groups and have shown, (1) that the eye-grounds in most cases of cerebral trauma, often a few hours after the injury, show evidences of stasis, which may rapidly lead to oedema of a measureable height, first appearing on the nasal side of the disc. The increase of pressure may not necessarily be due to a large actual extravasation of blood, as in apoplexy, but to a simple cerebral oedema consequent upon the minute extravasations of concussion or contusion. In these cases the neuro retinal lesion, which is indistinguishable from certain grades of so-called 'optic neuritis,' cannot possibly be due to other than the mechanical influence of increased intracranial tension, and it is well known that prompt operative relief from the pressure leads often to an equally prompt subsidence of the congestion and oedema of the nerve-head.

"Further, (2) owing to the frequent similarity between the condition seen in the eye grounds of patients with tumors and of those in whom nephritis is accompanied by headache and vomiting, or other signs suggestive of increased intracranial tension, we have been led to believe that the process in the two conditions is largely of a common origin and due to pressure, which in the latter case results from cerebral oedema. Thus we have found that the neuro-retinal changes in nephritis—the so-called "Neuro-Retinitis Albuminurica"—can often be temporarily modified, as Sanger has also observed, by a lumbar puncture which will dis-

close a superabundant fluid under tension: and what is more may be permanently modified by cerebral decompression. The same is true of many cases of cerebral arteriosclerosis when vascular disease has led to areas of cerebral oedema.

"Finally, (3) we have seen, in corroboration of the results of others, a great number of instances of partial or total subsidence of a choked disc after simple decompression. This more than any other factor, has served to favor a mechanical rather than a toxic source of the neuro-retinal change, which first or last is observable in most cases of cerebral tumor."

The experimental observations made upon dogs should be read in detail. The results are summarized as follows:

"(1) That the introduction of fluid under tension into the intra-cranial subdural space will produce an acute oedematous swelling of the nerve head and retina—in other words, the choked disc—which can be observed during life with the ophthalmoscope and demonstrated by a study of the tissue after death.

"(2) That simple digital compression exerted against an area of the dura exposed by a trephine opening and without the introduction of new fluid under tension will produce similar lesions.

"(3) That these acute oedemas of the nerve head and retina are associated, under both conditions, with distension of the optic sheath, particularly of its subarachnoid spaces.

"(4) That venous congestion does not seem capable, without the concomitant action of fluid under tension in the optic sheath, of producing more than the congestive features of choked disc; in other words, under the condition of the experiment it failed to occasion any appreciable oedema of the nerve-head.

"(5) The long continued pressure against a dural defect can lead to retinal hemorrhages and other clinical, as well as histological, features which characterize chronic choked disc in man.

"(6) That the introduction between the skull and dura of foreign bodies which are capable of subsequent increase in size and which possess some elasticity, will closely simulate the action of a new growth, and, placed either above or below the tentorium, will lead to the production of choked disc.

It may, therefore, be stated in conclusion:

"(1) That the occurrence of the neuro-retinal oedema is primarily dependent on the passage of cerebrospinal fluid under

tension from the subarachnoid spaces of the interpeduncular region into the vaginal sheath of the optic nerve, and the cerebral decompression often allows the process to subside, owing to a resultant diminution of tension from release of the confined fluid.

("2) That the experimental work corroborates many of the more recent clinical observations in showing that a choked disc, even of considerable height, may be rapid in its formation and, provided it has not gone on to the stage of new tissue formation, may rapidly subside, and thus speaks strongly in favor of a mechanical, as opposed to a chemical or inflammatory origin for the lesion."

N. M. B.

The Pathogenesis of Albuminuric Retinitis*

Th. Leber. Abstracted by Frederick A. Davis, Denver, Colo.

Both the retina and the choroid are affected by renal disease and

Both the retina and choroid are affected by renal disease and the pathogenesis is probably different in the case of each membrane. According to Leber the ocular disturbances are to be regarded as directly dependent upon their nephritic disease and not as due to a cause common to both retinal and kidney affections. Arguing against the latter view is the fact that albuminuric retinitis is not a harbinger of renal disease; it does not even appear in its first stages, but only after the excretory function has become seriously impaired. Greef's assumption that disease of the blood-vessels first occurs leaves unexplained why there may be vascular disease of the smaller retinal vessels without other retinal changes or with appearances different from those accompanying albuminuria. A comparison has been drawn between the subretinal exudate and the edema of the skin. They furnish, however, no complete parallel; one may occur without the other. Fibrin is present in the retinal exudate, but leucocytes are absent. In the cutaneous edema leucocytes abound while fibrin is generally absent. The presence of fibrin in the retinal exudate is not to be considered as proof of its inflammatory origin. It may appear whenever there is a difference of pressure between the contents of blood-vessels and the surrounding tissue, as in the aqueous after paracentesis. The fibrin present in the subretinal exudate is probably from the choroidal vessels but in the interstitial retinal edema the fibrin may be furnished by the retinal vessels. Fibrinous deposits are to be seen in the inter-

*Graefe's Archiv. für Ophthalmologie, LXX Band, Heft 1.

nuclear layer occupying cystoid spaces which were formed by the pressure of the exudate upon the supporting fibers. It is highly refracting and has perhaps sometimes been mistaken for hypertrophy of the glia framework or for colloid and hyaline deposits.

The presence of fat which is characteristic of this disease has hitherto been regarded as significant of a retrograde metamorphosis, a tissue necrosis in which the cell-albumen undergoes a fatty degeneration. The present teaching of pathologists in regard to fatty changes in the parenchyma of various organs is, that the fat is derived directly from the blood, the parenchyma assuming pathologically the function which physiologically belong to the cells of the mammary glands, viz., the storage of fat. The new hypothesis of fat infiltration enables us better to understand why even with ophthalmoscopic changes of a high grade the vision may be unaffected and why cases showing extensive white infiltration and even retinal separation leave little or no trace if the kidney resumes its functions. Leber's observations are a contribution to general as well as to ophthalmic pathology. By means of the osmium staining he was able to discover the process by which the fat is transferred to various portions of the retina.

Fatty deposits in the retinal tissues appear first, as free fat infiltration and second, in adventitious cells. The free fat predominates in the layers of the nerve fibers and ganglion cells; it may be seen arranged along the supporting fibers and the other elements of the glia framework. The adventitious cells are, aside from the presence of the fat, identical in appearance with the retinal epithelial cells. Pigment is rarely lacking. The fat is deposited within the nucleus. These fatty-nuclear pigment cells are often of considerable size, are spherical in form and usually contain so much fat that they stain very black with the osmium stain. Some of them are provided with processes showing amoeboid movement. Within the inner layers are some cells much changed in form, with an elongated cell body and long ramifications. The contrast is very striking between the enormous accumulation of the fat-bearing cells and the extremely slight changes in the retinal structure. The fatty cells appear like foreign invaders among the native retinal elements which are pushed aside. They seem to migrate from without inwards. In cases seen by Leber in which the disease was in an early stage of development, the cells were found in the subretinal fluid and in the outer layers only; some

were caught in the act of insinuating themselves, by means of their processes, between the elements of the layer of rods and cones; others were observed which had reached the inner margin of this layer, a portion of the cell being already through the limitans externa and within the outer nuclear layer. The derivation of the wandering cells can be proved in nearly every instance by the fucsin-bodies remaining within the protoplasm. In spite of the migration of the pigment cells no considerable disturbance in the continuity of the epithelial layer is to be noticed. Here and there a gap is to be seen; in places free cells are found in various degrees of pigmentation resting upon the pigment layer. Sometimes the appearances are those of proliferation; numerous strata of cells lacking pigment lie upon deeper layers partially pigmented, which in turn are adjacent to the completely pigmented retinal epithelium. Some of the free cells have two or more nuclei and some are smaller than the usual pigmented epithelial cell.

Often the number and size of the fat drops is so large as to thin the protoplasmic envelopes and crowd them together forming a network of layers or strands which enclose what may remain of the fucsin bodies. Close study of the fat drops which have been reported by other observers as free fat reveals the fact that they are surrounded by an exceedingly thin envelope of protoplasm which encloses fucsin bodies. All stages between the latter forms and the typical fatty-nuclear pigment cells are found.

These appearances he has never missed in any case of nephritic retinitis, moreover, he has observed the same changes in cases of fatty foci of other etiology.

Basing his conclusions upon such data, Leber outlines the following pathological history: There first appears in the subretinal space and in the retinal tissue a sero-fibrinous exudate which contains a certain amount of fat in a finely subdivided state. This fat is taken up by the pigment—epithelial cells and is stored up in its protoplasm in small and large drops while the fucsin bodies grow less in number. The absorption of fat begins with those epithelial cells which are in their normal position and continues in the case of pigment cells which have become free and have reached the subretinal fluid or wandered into the retinal tissue. A part of them are perhaps the result of proliferation. The cells most heavily laden with fat remain in the outer or middle layers, others press forward becoming deformed by the resistant retinal tissue and break down to amorphous material. The cells with the least fat

content reach the nerve-fiber layer where they follow the blood-vessels. The capacity possessed by the retinal epithelium for migration and phagocytosis is well known having been frequently observed in intra-ocular inflammations from foreign bodies and in melano-sarcoma of the choroid.

Not only is the tissue of the retina and choroid infiltrated with fatty cells but the blood-vessels of both membranes and of the papilla contain fat drops, partly free, partly enclosed in cells. Large fat-bearing pigmented cells identical in appearance with those seen in the retinal tissue are to be seen both in the wall and in the lumen of the small veins and arteries which are obliterated, some by thrombi, others with endothelial growth. Thus the fatty-epithelial cells seem in their migrations to reach the blood-vessels themselves. Such migrations are not without precedent as they also occur in choroidal sarcoma. Ocular venous hyperaemia and not changes in the small blood-vessels is regarded by Leber as the chief factor in nephritic retinitis. The passive hyperaemia causing deficient oxidation and slowing of the blood-current he deems a sufficient cause for both the increase of fat in the blood and for the pathological affinity of the pigment-epithelium for fat. Epithelium in general shows some tendency to absorb fat and the retinal epithelium of some of the lower animals normally contains it. The study of a greater number of recent cases is needed; the choroid in particular needing further investigation.

Surgical Treatment of Chronic Lachrymal Disease. Report of Cases of Extirpation of Lachrymal Sac.

Seaman, G. E., (Wisconsin Medical Journal, April, 1909): The author refers to the unsatisfactory results obtained in refers to the unsatisfactory results obtained in the treatment of chronic disease of the lachrymal apparatus and directs particular attention to the good results obtained by extirpation of the sac.

The indications for the operation given are; (1) chronic purulent inflammation with dilatation of the sac and thickening of the walls which have resisted treatment by the ordinary means. (2) lachrymal fistula. (3) mucocele. (4) conditions of chronic purulent inflammation where an operation involving the opening of the globe is contemplated, as in iridectomy, cataract and glaucoma.

The various steps of the operation are described together with the complications which may arise.

Three cases are reported.

N. M. B.

Lehrbuch Der Augenheilkunde.

Herausgegeben von Dr. Theodore Axenfeld, Verlag von Gustav Fischer in Jena, 1909. This substantial volume represents a new departure, in many respects, in ophthalmic textbook literature in Germany. Professor Axenfeld has associated with him a number of collaborators, each one of whom is an authority on the subject which he discusses. That which is essential receives consideration, but the book is in no sense a compendium because these essentials are thoroughly treated, and the student of ophthalmology will consult its pages with satisfaction. Differing from many German textbooks, it is elaborately illustrated, not only with ten chromolithographs of various fundus lesions, reproduced from Elschnig's original drawings, but with numerous other illustrations, many of which are colored.

The book begins with a review of therapeutic measures suited to the management of diseases of the eye written by Dr. Axenfeld, who also follows this chapter with another one on the examination of the eye. Ophthalmoscopic differential diagnosis is discussed by Elschnig, functional testing by Heine, anomalies of the ocular muscles by Bielschowsky, congenital anomalies by E. von Hippel, who also writes upon diseases of the lids. The chapters on diseases of the tear passages, injuries and sympathetic ophthalmia are contributed by O. Schirmer, the conjunctiva and its diseases are described by Axenfeld, the cornea by Elschnig, and affections of the uveal tract by Krückmann. Bach discusses the crystallin lens and its affections, Peters glaucoma and diseases of the orbit, while affections of the retina and of the optic nerve naturally fall to Professor Greeff, and the book concludes with a resume of the important general diseases and eye symptoms by Heine.

It may seem invidious to single out chapters for special commendation, but the reviewer has been particularly impressed with the satisfactory presentation of diseases of the uvea by Krückmann and the treatment of diseases of the conjunctiva by Axenfeld. Many of the black and white as well as colored drawings in the text are unusually satisfactory, although we suspect that Professor Elschnig's drawings of the fundus are better than the reproductions.

Pulsating Exophthalmos.

Pulsating Exophthalmos. Its Etiology, Symptomatology, Pathogenesis and Treatment—being an essay based upon an analysis of sixty-nine case histories of this affection. By George E. deSchweinitz, M. D., professor of ophthalmology in the University of Pennsylvania, and Thomas B. Holloway, M. D., instructor in ophthalmology in the University of Pennsylvania. Philadelphia and London. W. B. Saunders Company. 1908. Price, cloth, \$2.00 net.

Reports of Societies

WILLS HOSPITAL OPHTHALMIC SOCIETY.

Meeting of Monday, April 5, 1909.

SAMUEL D. RISLEY, M. D., in the Chair.

Dr. S. D. Risley presented for study a young man with obviously impaired general health but in whom no evidence of pulmonary, or glandular disease could be discovered. He came to receive relief from long standing ocular disease which presented many features of trachoma as it passes into the third stage. He had been treated for a long time with application of "blue stone" at different clinics. There was atrophy of the tarsal conjunctiva but no marked distortion of the cartilage. The corneas were vascular at the upper limbus. In the right eye, seen dimly through the superficial vascularity of the cornea, at the upper temporal quadrant, were three yellowish nodules apparently crowded closely into the angle of the anterior chamber. Dr. Risley regarded the affection as tubercular, and had just admitted the man to the isolation ward of the hospital, with instructions that his temperature should be taken every four hours for two days preparatory to tuberculin injections. He had brought the case forward for study so that the members of the society could witness with him at subsequent meetings the results of treatment.

Dr. Jennings, the senior house surgeon, presented from Dr. Fisher's service, the young woman with congenital cataracts and pigmentary degeneration of the retinas who was exhibited at the February meeting, upon whom Dr. Fisher had performed discission, with the visual result of 6/15 with correction.

Dr. Posey exhibited a case of ectropion of the lower lid, the result of a syphilitic tarsitis, in which the deformity had been overcome by a Kuhnt-Szymanowski operation. He spoke highly of this procedure and thought it well adapted for the relief of ectropion.

Dr. Risley congratulated Dr. Posey upon the excellent result gained by the operation. In an admirable manner it had met the principle involved in all of this class of cases, viz: The shortening of the ciliary border of the lid.

Dr. Posey also exhibited a case of convergent squint of high degree in a 9 year old boy in which parallelism of the visual axes

had been obtained by an advancement of an externus and tenotomy of both internus muscles.

Dr. Schwenk made a brief preliminary report from his clinic of two cases of endotheliomata. One occurred in the orbit of a mulatto girl aged 13, and the other was found in the ciliary region of a white woman aged 26. The orbital case is now in the ward. The mass with the globe was exenterated on February 27. Healing has progressed, yet it is believed that adjacent sinuses have been invaded.

Dr. Posey referred to the value of the Krönlein operation both for the removal of certain tumors of the orbit, as well as for diagnostic purposes. He had performed the operation in two instances and found it a comparatively easy and simple procedure. Subsequent scarring was slight. He spoke of the difficulty in arriving at the cause of many cases of proptosis and thought that if the Krönlein procedure was combined with that of the Killian and other forms of external incision into the sinuses, that the underlying condition in many obscure orbital diseases might be more readily ascertained. Every ophthalmic surgeon should familiarize himself with the various forms of operation practised upon the orbit and their surrounding cavities upon the cadaver, and should never be content with simple incision or any form of operation which left parts of the cavity unexplored, and failed to reveal the origin of the disease.

Dr. Zentmayer said that Krönlein operation is not so difficult as it appeared to be. One cannot tell of the size of a tumor from the amount of deformity present; a very small growth may produce great exophthalmos. This operation can therefore be of high diagnostic value, and be the means of saving the globe from enucleation.

Dr. William Zentmayer read a brief paper on "The Clinical Value of Perimetry." He spoke of the value of field taking in detachment of the retina in which there is often a want of correspondence between the ophthalmoscopic picture and the extent of the field. In optic atrophy, with cupping of the nerve, some cases can be differentiated from simple glaucoma by the character of the fields. In the former there is a relatively greater contraction for color than for form.

By a study of the field we have the most important means of determining the progress of glaucoma. Because of anatomical

differences which affect the tint of the papilla, in retro-bulbar neuritis, the finding of a central scotoma becomes at times the only way of determining the existence of it.

The charting of a scotoma extending from the blind spot out to the periphery, in a case with a patch of retinochoroiditis in juxtaposition with the papilla, serves to differentiate this clinical entity from chorioretinitis with the accidental location of a lesion at this site.

Dr. Zentmayer stated that the difference between a bilateral hemianopic scotoma, and a central scotoma due to involvement of the macular bundle, is that the blind area in the former extended to fixation, whereas in the latter it covered fixation, and extends a short distance beyond all meridians. He explained the importance of reversal fields, and tubular fields, in the diagnosis of hysteria, and he explained the various types of fatigue field in neurasthenia. In the study of pigmentary degeneration of the retina the presence of a ring scotoma may serve a distinct diagnostic purpose.

Dr. John B. Turner, a visitor, said that he had listened with great interest to this paper, and he wished the subject would be enlarged by Dr. Zentmayer and that he would write a hand book on practical perimetry. The beginner needs to be instructed in the value of a rapid manipulation of the machine, and he should be supplied with a manual in which the points to be observed in the diagnosis of the various diseases are concisely stated.

Dr. Schwenk spoke of the importance of the study of the peripheral visual field in comparison with the central acuity in cases of separation of the retina; and of the difference in the size of the scotomata caused by the presence of a solid mass and when from a fluid mass.

Dr. Posey referred to the detection of hemianopsia in the macular region, in which the fields may be normal except in that region. Wilbrand has described eight such cases. And Posey said he, too, had charted ring scotomata in retinitis pigmentosa, which he believed to be characteristic of the disease but which Shoemaker did not regard as important.

Dr. S. D. Risley thanked Dr. Zentmayer for his paper on perimetry. The signal importance and value of the perimeter in the diagnosis of disease with increasing experience had impressed itself upon him more and more. In a busy office it often demanded much courage and painstaking industry to take the perimetric chart

of the fields of vision for form and color; yet he felt that one's full duty to the patient had not been met if the field of vision had not been charted in any case of impaired vision not due to some obvious cause, or when the symptom-complex was obscure. Many doubts as to the nature of the trouble are often solved by the perimeter and by it alone.

BURTON CHANCE, Secretary.

OPHTHALMIC SECTION.—ST. LOUIS MEDICAL
SOCIETY.

Meeting, Wednesday, January 13, 1909.

Chairman, DR. A. E. EWING, Presiding.

Parinaud's Conjunctivitis.

By Dr. Carl Barck. (Presentation of case.) The patient, a boy of 12 years, consulted Dr. Barck, December 21, 1908, saying that one year previous he had had some soreness and discharge from the left eye, with swelling of the upper lid and some swelling in front of the left ear.

When first seen by Dr. Barck there was a muco-purulent discharge, conjunctiva of lower lid slightly injected, conjunctiva of upper enormously swollen and infiltrated, particularly the fold of transmission. There was a large excrescence in the center of the conjunctiva of the upper lid, the size of a small pea with a yellowish white ulcer in the center. On the nasal half of the same conjunctiva were three yellowish gray infiltrates of pin-head size with two smaller spots on the temporal half. The pre-auricular gland was enlarged, being $\frac{1}{2}$ inch in diameter. The two cervical glands also enlarged, were smaller. Inquiry was made as to the association of the boy with animals, because of the belief that this disease is transmitted from domestic animals, especially cattle. The patient had been in contact with no animals except a goat which had no abnormal condition of the eyes. Under general anesthesia, one of the infiltrated follicles was removed and examined, and the excrescences and all infiltrates were expressed with Noyes' forceps. The specific organism of the disease which is supposed to exist, has so far not been classified. In this case, the follicle excised was subjected to microscopical examination, and a number of smears made and examined, all with negative results. Four eyes and one cornea of rabbits were also inoculated, with negative results.

A Case of Suppression of the Secretion of the Aqueous Humor.

By Dr. W. A. Shoemaker. J. M. C., aged 42, consulted me on December 14, 1908, giving the following history:

Was chopping wood one week ago, when a piece struck him in the right eye slightly wounding the edge of the lower lid and at once, completely blinding him. He is positive that he could not distinguish light from darkness with this eye for several hours, after which time vision began to return and by evening, the accident having occurred in the morning, he could distinguish large objects. His vision remained blurred and two days after the accident, he applied at one of the clinics for treatment. He took treatment for the succeeding five days, and finding his vision no better, consulted me on the morning of Dec. 14, when I found the eye in the following condition:

V. = 5/200. Ciliary and conjunctival injection, some photophobia, lachrymation and pain. Pupil about 4 mm. in diameter, anterior chamber extremely shallow and the tension about -2. As the iris was inflamed, atropin was used to dilate the pupil. Some posterior synechiæ were found which disappeared by the next day. The ophthalmoscope revealed deposits on Descemet's membrane, and a hazy vitreous. Bichloride of mercury in 1/16 gr. doses was given internally, three times daily. The next day, Dec. 15, the pupil was dilated ad maximum, there was less ciliary injection, no pain and the vision was 13/200. Tension about -2. On Dec. 16, V = 13/20. Dec. 26, ciliary and conjunctival injection gone, vitreous much less hazy, and vision 13/50; W. — .50 D. S. = — .50 D. C. Ax. 75 = 17/20. Jan. 5, 1909, V. = 13/20. Vitreous clear. Anterior chamber shallow as at first. T. — 1. Jan. 13, eye quiet, V. = 13/30. W. — .50 D. S. = 17/15. Reads J. 1 at 14" W. + 1.50 D. S. T. — 1, Ant. chamber shallow as at first visit. V. O. S. = 17/15 W. + 10 S. = 17/15; J. 1 at 13". The temporary, complete loss of vision in this case was probably due to commotio retinae which was caused, as it usually is, by the eye being struck with a blunt object. The shallow anterior chamber accompanied by minus tension can, it seems to me, be accounted for only on the supposition that there is a suppression of the secretion of the aqueous humor. This is a condition that, so far as I know, is quite rare.

A cursory examination of the available literature reveals only

one case, which was reported by D. C. Lloyd-Owen in the *Ophthalmoscope*, Aug. 1, 1906. A professional man aged 40, who had always enjoyed good health, and good vision, complained of having blurred vision in his right eye with a slight soreness, for one week. Owen found the anterior chamber very shallow, pupil active and normal in size, some tenderness over the equatorial region, and tension —2.

This condition lasted for one month when his sight suddenly became normal for a few hours. One week later, his vision again became normal, at which time the author found the anterior chamber and the tension normal. Four days later he had another relapse of three days, after which the eye remained normal for fourteen days, followed by a relapse of three days, a recovery for a month, two days relapse and then permanent recovery.

Retinal Degeneration Simulating Retinitis Circinata.

By Dr. John Green, Jr. Mrs. M. G., married, age 65 years, Russian, came to my service at the Protestant Hospital Dispensary, December 26, 1908. She stated that the vision of left eye had been defective for some time. On December 25, the vision of the right eye suddenly grew dim. R. E. with plus 1 sph. V. 20/100, L. E. with plus 1 sph. V. 20/50. The ophthalmoscope revealed in the right eye retinal degeneration and hemorrhages. The patient was put in the hospital and a careful physical examination by Dr. M. L. Warfield revealed nothing in the general symptoms to account for the retinal degeneration. Urinalysis showed absence of albumin, sugar, blood and bile. No increase in indican. Microscopically, epithelium and pus cells, no casts. Under potassium iodide, the hemorrhages have partially resorbed, but otherwise the fundus picture is much the same as at first examination. I present the case mainly to elicit suggestions as to how it should be classified. Its general appearance is suggestive of retinitis circinata.

DISCUSSION.

Dr. F. L. Henderson said that Dr. Green had referred to the possibility of his case being retinitis circinata. Dr. Henderson had had the pleasure of seeing two cases of retinitis circinata in the last two years. When he saw the first one he had looked up the picture of the disease as presented in Dr. Schweinitz's report and found it almost identical with the picture of the case he had in hand. He thought that Dr. Green's case showed very little resemblance to retinitis circinata. The arrangement of the white

deposits was not sufficiently circular to give it that name. As he understood retinitis circinata, it was a name for a form of retinitis distinguished by its peculiar anatomical arrangement. These exudates, or whatever the peculiar white tissue is, are arranged in circular form and unless so arranged, he did not believe it should be called a retinitis circinata.

Removal of Fragment of Steel Imbedded in the Crystalline Lens Followed by Linear Extraction.

By Dr. W. H. Luedde. J. C., age 40 years, formerly baseball player, now carpenter, presented himself at the O'Fallon dispensary December 23, 1908, for treatment for his left eye. His statement was that four days before while trying to loosen a steel chisel, which he struck on the sharp end with a hammer, a small piece broke off and lodged in his left eye.

When I first saw him, the lens of the left eye was found clouded, a faint red reflex being present at the periphery, photophobia and circum-corneal injection were marked, pupil small and iris adherent to the anterior capsule of the swollen lens. Further examination showed what appeared to be the scar of a perforating wound in the center of the cornea. Immediately behind this, lying with its point forward, in the antero-posterior axis of the lens was a small sliver of metallic substance, probably steel. The removal of this was accomplished by the aid of Dr. Charles with his giant magnet. Eleven days later, a linear extraction was done to remove the swollen substance, which was causing pronounced secondary glaucoma.

There have been no unpleasant complications and the vision now is fingers at two feet, which will no doubt improve as the soft lens substance which still is present in the pupil will be absorbed.

DISCUSSION.

Dr. J. E. Jennings had had a case recently which might be of interest. A young man about 20 years old had had a hammer and a hatchet in his hand tapping them together. While doing that something struck him in the right eye. He went to a drug store and was given a lotion which he applied to the eye. His eye cleared up and did not hurt him at all. He only consulted Dr. Jennings on account of the dimness of vision in that eye. Examination showed opacity in the upper part of the lens; the iris seemed to be attached at that point, and there was visible a very small wound in the cornea. The localized opacity in the lens seemed

to point to the presence of a foreign body, so the giant magnet was used. As soon as the current was turned on, the lens was drawn forward. The doctor thought he could detect the end of a piece of steel. He made a small incision and introducing a iris forceps picked it out.

The Technique of Localizing Foreign Bodies in the Eye and Orbit by the X-Ray.

By Dr. R. D. Carman. Dr. Carman, in localizing foreign bodies in the eye and orbit, uses the method of Dr. Sweet of Philadelphia as modified by Dr. Bowen of Columbus in conjunction with the Weeks-Dixon chart. The localizing instrument, together with localizing stand and clamp for the head, tunnel and plate carrier, are made by Kelly-Koett Manufacturing Company. The tunnel and plate carrier of this instrument enables one to make two exposures on one plate without disturbing the patient or the localizing instrument. Two pictures are taken in slightly different planes and from the shadows of the ball and cone, used as indicators whose positions are known, measurements to the foreign bodies are made and recorded upon a chart by which the position of the latter is graphically shown at once, without any intricate mathematical calculation. The technique of the operation is as follows:

The patient is required to lie upon the regular compression diaphragm table, the head resting on the localizing stand with the affected eye next to the plate, clamped and steadied with sand bags to prevent motion. The visual axis of the eye should be parallel to the plane of the plate and fixed on some object. For this purpose a candle is employed at a distance of 15 feet and an inch or two above the level of the localizing stand. By this means the visual axes are rendered approximately parallel to the plate. With the patient in position, and the eyes fixed, the indicators are adjusted. The indicator is set and the ball placed in the center of the cornea so as to indicate the visual axis of the eyeball. The patient is then asked to close the eyes and the ball pushed into the lid about the lid's thickness and the trigger released, when the ball drops back 10 mm. The patient is then instructed to open the eyes again and look steadily at the candle. In this position the first exposure is made with the ray perpendicular to the plate and parallel to the indicators. The tube is then shifted toward the

patient's feet, four or five inches and tilted slightly. The plate is changed and without moving the ball and cone, another exposure is made. Measurements are made as follows:

Upon the first negative a line is drawn in the axis of the rod and ball which are here superposed, and the visual axis of the eye is at once established. A line is also drawn perpendicular to this and through the center of the foreign body's shadow. With a millimeter rule is measured the distance of the foreign body above or below the visual axis and said distance in millimeters laid off upon the front view in the chart either above or below the center of the cornea, and above or below the point representing the position of the cone. A line is drawn through these indicated points on the chart.

Likewise upon the second negative, lines are drawn through the axis of the ball and the axis of the cone and one perpendicular to these through the foreign body. Then with the millimeter rule the distance of the foreign body above or below the prolonged axis is measured. These distances are also recorded upon the front view in the chart at the proper point and a line is drawn through these points. The intersection of this line with that made from the first negative will represent the location of the foreign body as viewed from the front.

Again upon the first negative the distance of the foreign body from the anterior surface of the cornea is determined by measuring from the ball along its axis to the perpendicular through the foreign body and deducting 10 mm. for the rebound of the ball when the trigger is released. Upon the chart, a line is drawn from the point of intersection in the front view, parallel to the line going through the center of the cornea, into the horizontal section, and the distance from the front of the cornea measured and indicated. In a like manner, a line is drawn from the point of intersection in the front view, parallel to the chart line going through the center of the cornea, into the side view, and the distance measured back from the center of the cornea.

In making the lines, the measurements upon the negative charts, extreme accuracy should be sought for, since an error of only a millimeter in measurement may lead to a more considerable error in fixing the location of the foreign body.

COLORADO OPHTHAMOLOGICAL SOCIETY.

Meeting of April 17, 1909, in Denver.

DR. E. R. CONANT, Presiding.

Cyst of Anterior Chamber.

Dr. E. Jackson presented a man, aged 21, who before he was two years old had his left eye struck with a fork. There was a flat scar at the upper corneal margin, with anterior synechia. From it an almost circular, translucent, light brownish-gray cyst 4.5 mm. in diameter extended downward into the anterior chamber, having the appearance of a lens nucleus. At its lower margin was a yellowish line looking like sediment. There was high astigmatism in both, but higher in the other eye; and the patient had always considered this his better eye. Vision: R. = 4/25, L. = 4/10. With correcting lenses, worn three weeks, he had V. = 4/4 in each. There was no sign of irritation, and no increased tension. No interference was advised unless the cyst grew or caused some disturbance.

Discussion—Dr. Stevens considered this an implantation cyst, epithelium having been carried in by traumatism.

Dr. Walker related a case of iris cyst which he had observed. He noted that the stroma had separated and fluid formed within.

Traumatic Incision of Cornea.

Dr. W. C. Bane showed a boy who had been struck on the left eyeball by a falling icicle, 24 days before. An A-shaped incision of the cornea, 2×3 mm., resulted at the lower limbus, with iris prolapse. Although seen at once, the prolapse could not be replaced; so it was cut off. Under atropin, trikresol and vaselin (1:500), and bandage prompt healing occurred without pain or photophobia. The ophthalmometer showed astigmatism of 1.25 D. axis 105°—15° L. V. = 4/10c.—1.25 cyl. ax. 15° = 4/4.

Corneal Staphyloma.

Dr. C. B. Walker presented a case that had consulted him last autumn because of an infected ulcer of the cornea, 2.5 mm. in diameter and to the nasal side of the pupil. This was curetted at once, and argyrol baths and hot applications ordered. On the following day the ulcer involved the entire cornea. Paracentesis was then done by Paquelin's cautery. The final result was a staphyloma involving all the cornea except a narrow peripheral ring.

Discussion—Drs. Jackson and Patterson suggested the lower part of the corneal periphery as the place of choice for paracentesis, and would open the anterior chamber for pain.

Drs. Neeper and Patterson had curetted and cauterized a bad central ulcer in the only good eye of a patient, with quick recovery. Later, good peripheral vision followed iridectomy.

Dr. Black thought the actual cautery should be abandoned in favor of the caustic applications of carbolic, nitric or trichloroacetic acids, followed by 25% argyrol every two hours. He also said that vaccine therapy would save more eyes in the future; and reported a case of phlegmonous dacryocystitis of an erysipelatous character in which the use of streptococcus vaccine had been followed by cure of the lachrymal disturbance and a profuse nasal discharge.

Dr. Stevens said that the structure of the cornea makes even pinhead ulcers serious, and that in future the question of treatment would be decided bacteriologically. He thought the pneumococcus ulcer was best treated by curetting, cutting off its edge, and touching with nitric acid; and recommended bichloride of mercury and iodoform in vaseline as a good dressing for infected ulcers. Dr. Stevens said that immunity was a slow process, and that vaccine was best for chronic cases, and of no benefit in acute infectious cases. He suggested a trial of vaccine in chronic dacryocystitis.

Gunshot Wound of Eyeball.

Dr. E. W. Stevens presented a man, 42 years, who had been struck in the left eye, two days before, by a No. 6 birdshot. The patient was 145 yards from the gun, and the shot had ricocheted from the surface of a duck lake before hitting him.

The shot penetrated the upper lid about 4 mm. above its central margin and entered the bulbar conjunctiva 8 mm. from the corneal margin, in the vertical plane. When first seen, two hours after the injury, there was general subconjunctival hemorrhage, and the ophthalmoscopic examination showed hemorrhage in the upper half of the vitreous, the lower half being perfectly clear. T.—2.

Dr. C. H. Stover, to whom the patient was sent for an X-ray examination, located the shot 20 mm. back of the center of the cornea, 16.5 mm. above the horizontal plane and 7 mm. to the nasal side of the vertical plane. This placed the shot outside of the eyeball. The treatment was atropin and bandage.

Discussion—Dr. Libby related a case of lodgment of a small fragment of steel in the posterior part of the orbit, as shown by an x-ray photograph. The projectile entered just above the inner canthus, without injury to the eyeball or its adnexa. No injury was ascertainable five years later.

Dr. Neepier reported the entrance of a shot through the lower lid, grooving the sclera but not puncturing it, and entering the brain. The anterior chamber had filled with blood, and some hemorrhage occurred in the vitreous. The eye was sore and some impairment of motion followed the accident. Subsequently the hemorrhage absorbed, the eye got well, and no injury resulted to the brain.

Irido-Cyclitis.

Dr. E. R. Conant showed a man of 47, with history of recurring inflammation since 1882. The right eye showed a cloudy cornea, a discolored iris firmly bound down to the lens capsule, a hazy vitreous, with vision = 12/200. Immensely hypertrophied middle turbinates had just been removed. There were no history of rheumatism or syphilis. Treatment: Atropin and dionin.

Discussion—Dr. Bane would give mercury by inunction.

Dr. Black said that cases of uveitis with vitreous opacities did badly.

Conjunctival Burn and Traumatic Cataract.

Dr. Conant also presented a man, aged 42 years, who had experienced a peppering of the entire right side of the body from the explosion of a hundred dynamite caps, 23 days before. The skin about the right eye was injured, but not the globe. The conjunctiva of the left eye was burned, and the lens became cataractous in a few hours. On first examination, April 16, 1909, cortical matter was seen in the anterior chamber. R. V. = light perception. Small white particles embedded in each cornea were then removed. R. media clear except corneal scars, and fundus normal. Atropin and dionin were ordered, with holocain if necessary.

DISCUSSION.

Drs. Bane and Walker thought the cataract was probably the result of perforation of the lens capsule rather than concussion.

Monocular Acute Trachoma.

Dr. Melville Black presented a drug clerk who had suffered from inflammation of his right eye for a month. When first seen,

a week before, there was some question as to diagnosis. The eye then had many signs of keratitis profunda, also many symptoms of acute trachoma. The trachomatous nature of the process had, however, now become positive. Dr. Black had rubbed the lids with boric acid powder and applied glycerole of copper solution.

DISCUSSION.

Dr. Patterson advised argyrol, and thought the monocular manifestation suggested bacterial infection.

Dr. Hilliard would apply 2% silver nitrate to everted lids, neutralizing the excess with sodium chloride, and also use 5% dionin.

Dr. Bane would use copper rather than silver, with the epithelium broken.

Dr. Walker used silver nitrate only when discharge was present.

Dr. Neepor suggested 1% ichthyol in olive oil or vaseline, and would also use nitrate of silver and dionin.

Dr. Strader had been using 2% dionin and 1/2% antipyrin for corneal herpes, and had found this strength of antipyrin of benefit with irritating collyria.

Dr. Black had found 2% silver nitrate beneficial in marginal blepharitis of children.

Nasal Treatment of Cyclitis.

Dr. C. H. Strader reported removal of anterior end of hypertrophied middle turbinal and curettement of anterior ethmoidal cells, liberating pus, in case of *traumatic cyclitis* presented by him at the last meeting. The eye cleared up, photophobia disappearing and vision raising from 4/30 to 20/70 in ten days in spite of a severe attack of la grippe. Later vision became 20/40. Sixty grains of aspirin had been given once, and dionin and heat had been used, since the nasal operation.

Snow Blindness.

Dr. Strader also reported snow blindness on a *cloudy* day following a 25-mile ride in the wind. A narrow band of cornea, corresponding to the palpebral aperture, stained with fluorescein the second day, but not the first.

GEORGE F. LIBBY, Secretary.

CHICAGO EYE CLINICS.

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THE OPHTHALMIC RECORD.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A.M.	Richard S. Pattillo (P.-G.) J. F. Burkholder (E. E. N. T.)	G. W. Mahoney (Pol.) Geo. F. Suker (P.-G.) Oliver Tydings (E. E. N. T.)	E. J. Brown (E. E. N. T.)	G. W. Mahoney (Pol.) Richard S. Pattillo (P.-G.) J. F. Burkholder (E. E. N. T.)	Richard S. Pattillo (P.-G.) Oliver Tydings (E. E. N. T.)	G. W. Mahoney (Pol.) E. J. Brown (E. E. N. T.)
10 A.M.	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	E. J. Brown (E. E. N. T.)	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)
11 A.M.	Brown, Pussey, N. W. U. Every day, 10.42 A.M.					
	H. W. Woodruff (E. E. N. T.)	A. G. Wippert (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	A. G. Wippert (E. E. N. T.)	H. W. Woodruff (E. E. N. T.)	A. G. Wippert (E. E. N. T.)
1 P.M.		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)
2 P.M.	E. V. L. Brown (Inf.) E. J. Gardner (E. E. N. T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) D. C. Orcutt (Inf.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) F. A. Phillips (Inf.) Wm. H. Wilder (Inf.) N. A. Young (Inf.) H. W. Woodruff (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) E. K. Findlay (Inf.) Thos. Faith (E. E. N. T.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) F. A. Phillips (Inf.) Wm. H. Wilder (Inf.) N. A. Young (Inf.) H. W. Woodruff (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) W. Allen Barr (Inf.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) D. C. Orcutt (Inf.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) F. A. Phillips (Inf.) Wm. H. Wilder (Inf.) N. A. Young (Inf.) H. W. Woodruff (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) E. K. Findlay (Inf.) Thos. Faith (E. E. N. T.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) F. A. Phillips (Inf.) Wm. H. Wilder (Inf.) N. A. Young (Inf.) H. W. Woodruff (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) D. C. Orcutt (Inf.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) F. A. Phillips (Inf.) Wm. H. Wilder (Inf.) N. A. Young (Inf.) H. W. Woodruff (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) E. K. Findlay (Inf.) Thos. Faith (E. E. N. T.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) F. A. Phillips (Inf.) Wm. H. Wilder (Inf.) N. A. Young (Inf.) H. W. Woodruff (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)
3 P.M.	W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)	II. H. Brown (Ils. Med.) W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)	*J. E. Harper (P. & S.) W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)		W. Allen Barr (C.C.S.)	Geo. F. Suker (P.-G.)
4 P.M.	W. F. Coleman (P.-G.)	C. W. Hawley (P.-G.)	G. F. Suker (P.-G.)	C. W. Hawley (P.-G.)	W. F. Coleman (P.-G.) Brown Pussey (County)	

*Special operative eye clinics.

ABBREVIATIONS:

C. S.: Chicago Clinical School, 819 W. Harrison Street. E. E. N. T.: Chicago Eye, Ear, and Throat College, Washington Franklin Streets. Clinics all day.	County: Cook County Hospital, W. Harrison and Honor Streets. Ils. Med.: Illinois Medical College, 152 Washington Blvd. Inf.: Illinois Charitable Eye and Ear Infirmity, Peoria and Adams Streets.	Pol.: Chicago Policlinic and Hospi- tal, 174 E. Chicago Avenue. P.-G.: Post-Graduate Medical School of Chicago, 2400 Dearborn Street. N. W. U.: Northwestern University, 2431 Dearborn Street.	Rush: Rush Medical College, W. Harrison and Wood Streets. St. Luke's: St. Luke's Hospital, 1416 Indiana Avenue.
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THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

VOL. XVIII CHICAGO, AUGUST, 1909 NO. 8, NEW SERIES

OPHTHALMOPLAGIC MIGRAINE INVOLVING THE ABDUCENS NERVE. WITH THE REPORT OF A CASE.

BY C. A. VEASEY, A. M., M. D.

SPOKANE, WASH.

Late Assistant Professor of Diseases of the Eye, Jefferson Medical College, Philadelphia; Late Ophthalmic Surgeon, Methodist Episcopal Hospital, Philadelphia.

Ophthalmoplegic migraine is not a very infrequent disease involving as it usually does the muscles supplied by the third nerve, many such cases having been reported, but attacks involving one of the other nerves which supply the ocular muscles are of very rare occurrence. A few cases have been recorded in which the fourth or sixth nerve has been affected. Charcot (1) reported such a case in a patient forty-one years of age who began having ordinary attacks of migraine at the age of sixteen, which ceased in the thirty-second year. In the thirty-eighth year there was a violent attack of left-sided neuralgia without nausea or vomiting lasting for four hours and followed by diplopia, which was due to an isolated paralysis of the abducens nerve. Recovery from the paralysis took place in five days. After an interval of two years there was a similar attack of neuralgia on the right side which was followed by paralysis of the oculo-motor nerve. In six months there was still another attack, again on the left side, followed by paralysis of the sixth nerve.

Paderstein (2) reported a case with paralysis of the left abducens nerve and weakness of the left superior rectus muscle.

(1) Abstracted in *Neur. Cent.*, XVII., 2, p. 73.

*Read at the first meeting of the Medical Associations of the Pacific Northwest, held at Seattle, Wash., July 20-23, 1909.

The pupils were equal and there was no paresis of the levator palpebrae.

De Schweinitz (3) has reported a case of recurrent paresis of the abducens nerve which was first observed when the patient was one year old, recurred a year later, and again in five years. In this patient the attacks began with fever, nausea, vomiting and headache, and complete recovery was observed after each attack. The following notes are those of a case which belongs in this class.

S. R., a girl aged six years, was first examined June 1, 1907. She looked apparently well, had a rosy color, and indeed, according to the mother, was perfectly well except for violent attacks of headache which began in her fourth year of age and which had recently become of more frequent occurrence. These attacks always began with violent supra-orbital and temporal pain on the left side, lasting for an hour or two, and were always followed by nausea and vomiting. Occasionally the first vomiting relieved the pain, but more frequently the vomiting was followed by violent retching which usually continued until after the child had secured some sleep. Marked photophobia was usually present during the attacks. As previously stated, the attacks had become much more frequent during the few months previous to my examination, and immediately following an attack which occurred six months before I saw the patient, there was observed a squint in the left eye, the latter turning toward the nose and the patient complaining of diplopia. After a week or two, according to the mother, the squint disappeared. A few days before I examined the patient she had an unusually violent attack followed by prolonged vomiting and retching, and on the following day again complained of diplopia. At the time of my examination there was a distinct internal squint of the left eye due to the almost complete paralysis of the external rectus muscle.

Examination of the eyes showed the vision in each to be 6/9 and the refractive error to be a compound hyperopic astigmatism. Each optic nerve presented the appearance of the so-called pseudo optic neuritis which I have observed several times in patients subject to violent migrainous attacks. In ten days' time the paresis had entirely disappeared and the patient was glassed.

Under treatment the migrainous attacks became somewhat

(2) *Deut. Zeit. f. Nervenheilk.*, XV, 5 u. 6, p. 418.

(3) *Philada. Polyclinic*, VI, p. 39.

less frequent, but in October, 1907, there were three very violent attacks within ten days' time, all on the left side, the last of which was again followed by paresis of the left external rectus muscle. The paresis of the muscle this time lasted three weeks, after which it had entirely disappeared. Shortly after this attack the patient passed from under observation so that the subsequent history is not known.

The symptoms of ophthalmoplegic migraine are usually divided into two periods. First, the period of pain; second, the period of paralysis.

The onset of the pain is usually quite sudden and the pain is ordinarily confined to one side. It is sometimes in the neighborhood of the eye, and although it may be preceded by the usual visual aura, the latter are more frequently absent in this form of the disease. The pain gradually increases in severity and although it is, as a rule, more localized than in ordinary migraine, it may spread over a large area. According to most observers, however, in almost all cases it is confined to one side.

The duration of the pain is variable. In most cases this period may be very short; in others it may last several days. It is ordinarily terminated by an attack of vomiting which may be regarded as a sort of crisis, as this attack usually brings sudden and prompt relief.

Upon the disappearance of the pain and vomiting the period of paralysis appears. This paralysis, in a great majority of cases, is confined to the oculo-motor nerve, and is usually total and complete, producing both an external and an internal ophthalmoplegia. The paralysis, however, is not always limited to the third nerve and, as previously stated, the fourth or sixth nerve may be involved. One case has been recorded (4) in which a recurrent paralysis of the seventh nerve was always preceded by an attack of migraine, and a few cases have been recorded in which there was anaesthesia of the fifth nerve. The duration of the period of paralysis may extend from a few days to several months, and, according to some authors, is always confined to one eye and after repeated attacks may become permanent.

The migraine is very apt to begin at an early age and in some instances, ordinary, or ophthalmic migraine, will change to the ophthalmoplegic type.

(4) Rossolimo, *Neur. Centbl.*, 1901, S. 744.

Our deficient knowledge as to the causation of ophthalmoplegic migraine makes the treatment largely symptomatic. Many remedies have been suggested which may accomplish good results in some one case and yet fail in others. In the very beginning of an attack a saline laxative will sometimes abort or diminish its severity. Occasionally an emetic is employed to accomplish the same result. For the relief of pain some one of the coal tar products, with or without citrate of caffeine, is ordinarily employed. To reduce the frequency of the attacks cannabis indica has been suggested by Sinkler. If there is marked pallor of the features during an attack, inhalations of nitrite of amyl sometimes affords relief. As a last resort hypodermic injections of morphia will sometimes have to be employed, but the danger of producing the morphia habit is very great. Occasionally heat or cold applied locally affords temporary relief.

For the parietic condition of the ocular muscle the internal administration of the iodids followed at a later date, if the paresis is persistent, by the employment of strychnia and galvanism, offers the best means of relief. In many cases, however, as previously stated, the paralysis becomes permanent notwithstanding all treatment.*

SHOULD WE OPERATE IN HIGH DEGREES OF MYOPIA?

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Should we operate in cases of high grade myopia or not? That is surely a leading question, well open for argument, and should not be decided without much careful consideration and thought. Then we must ask ourselves other questions, namely, upon what cases, which operations and what may be the direct and indirect results. Monographs and books, some for, others against operative interference have been published in the past decade, case reports and statistics, but as the wave of enthusiasm seems to be subsiding, we can look at the matter with unbiased views, and act as a carefully weighed consideration may decide it.

That the operative procedure is not of recent discovery is shown by tracing the work historically. Boerhave in 1708 and Woolhouse in 1717 demonstrated in their lectures that when myopes were operated for cataract they needed no convex glasses.

They were then depressing the lens for opaque conditions, and Boerhave came to the correct solution, showing in a few words the reason. "*Lente suppressa, focus in puncto a cornea remotiori figitur, ut in retinam ipsam indicat, qui antea ante retinam colligebatur.*" (1). After this followed several other ophthalmologists, mostly of French origin, who performed this depression in like cases. Boerhave, who for a long time refused to sanction this method, admitted in 1817 that in certain cases of myopia bordering upon blindness a trial of this nature was admissible. Then followed another dispute, in which v. Graefe, Mooren and Weber, Donders and Mauthner participated. In this way the matter was in an unsettled state when Fukala (2) in 1889 published his results in 14 cases, followed shortly after, by notes upon many other cases in youthful individuals, with good results. This last paper had the desired results, that of lending an impetus to the work, but still the great majority of high class oculists were skeptical. It was really not until 1892 when v. Schweigger, Pflüger and Thier brought the matter up at the Heidelberger Congress and later v. Hippel and Sattler and others spoke for the interference, that it became at all popular, and then it swept along in a wave of enthusiasm. In 1896 reports of over a thousand cases had been published and these were constantly being added to. However, here of late the value of the operation has been conservatively discussed and Hirschberg, Silex and v. Wecker have raised their voices in opposition. And thus stands the matter which I should like to discuss fairly, trying to be absolutely impartial in my judgment.

Of course in a paper of this sort, it is necessary to quote a great number of references, with their ideas and findings and I trust that I may be pardoned for the frequent interpolations of the work of others. The consideration of this subject was brought into prominence by the following case:

HISTORY—Patient is a well nourished man of 31 years, an expert machinist by trade. Has a wife and family to support. For many years has been growing more near-sighted so that at present while wearing —18.0 both eyes, is unable to see the fine work in filing; his glasses making the object appear too small.

Examination showed a rather prominent pair of eyes and the typical expression of a high grade myopia. Visus was 6/36 in each eye with full correction. Retinoscopy revealed meridians of

—21 and —19 in both eyes. The fundus showed a large myopic crescent, about width of the disk, but no chorioidal atrophy or macular changes.

This patient proposed the operation and asked me to perform it for him, for he stated that he was absolutely unable to continue his work, having given up a position in an automobile factory because of the inability. Now the question arose, if we were justified in attempting the operation in this patient, for in case of failure, not only the man but his family would become public charges, by failure I mean a deterioration of the 6/36 which he then had. Do the advantages overbalance the danger in a case of this kind and what can you promise your patient? To each case of this kind there is an economic status.

There are several operations performed for the removal of the lens, advocated by various men, under indicated circumstances.

(1) A dissection of the transparent lens and subsequent needlings until absorption has taken place.

(2) The dissection followed in two weeks by a linear extraction, an operation brought to conclusion much more rapidly than the first method.

(3) Extraction of the lens in capsule after the Jullunder method of Major Smith, dangerous because the already diseased condition of the vitreous in myopic eyes.

(4) An ordinary flap extraction with a subsequent needling of the secondary remains in case this may be necessary.

(5) A linear extraction "a primori."

The first two methods are those advocated by Fukala in his numerous writings upon this subject and seem to give the best results, besides incurring the least danger. Schweigger (3) and Pfluger (4) also advise these means. Vacher (5) and Hirschberg (6) both spoke in favor of the flap extraction while the lance extraction received its support from Sattler (7) Hess (8).

The advantage to be gained after a successful operation. In case that the operation has run an uninterrupted course and is brought to a successful conclusion, you certainly expect to find several advantages derived from it. The first, is the ability of the patient to go around without the heavy disfiguring glasses and very often, through a pseudo-accommodation which may be the result of the pressure of the converging muscles upon the bulb, to dispense entirely with glasses for close work. This depends

upon the pre-existing degree of myopia, which should never be less than 16 Diopters in an operative case. Closely allied to this freedom from glasses, is the increased visual acuity which is often present, possibly because a concave lens of great curvature appreciably decreases the size of the object looked at. Reber (9) removed a lens in an eye with 24 D. of myopia and 1 D. of astigmatism, the vision of which was 5/30. After the operation the sight increased to 5/15 with a —4 D. cylinder. Barnes (14) and Peck (15) both obtained 20/30 without lenses in their respective cases. Sidler Huguenin (10) has compiled the results of 75 operated eyes from the Haab clinic in Zurich, after the Fukala method. The vision, as compared with that taken before the operation showed that it increased in 57 cases, remained the same in two and diminished in 16. The decrease is attributed to fresh diseases in the macula in two cases, in two other cases a pre-existing condition grew worse. Central hemorrhages in 3, retinal detachment in 1, a thick posterior capsule remaining in 1, and the rest were amaurotic eyes. The refraction following the operations showed 23 to be emmetropic, 12 were still myopes, and 34 had varying degrees of hypermetropia. While these statistics are not very favorable, yet the cases selected were probably the worst which appeared in the clinic. However if the vision was benefited in over 60 per cent it seems that considerable was gained, especially if the eyes were operated at such intervals that a bad result upon one side might serve as a warning before attempting the other.

Another advantage attributed to the operation is, that it prevents a further increase in the disease, also that it exerts a prophylactic measure against detachments and other grievous sequelae of this condition. These are combatable assertions, but in fairness to the advocates of this side, their views must be expressed. Salzmann (11) has written that the operation has a tendency to relieve the tension and this exerts a beneficial effect toward checking the increase in size of the ball. Gelpke (12) saw no increase in the myopia after a long period, in 88 cases under observation. Hansell (13) obtained 20/70 and 20/50 in the case of a boy with 21 and 22 D. in the presence of central chorioidal changes and retinal hemorrhage. In conclusion the author implies that he considers the fundal changes held in obedience by means of the operation.

Pause (16) reports that he saw 24 out of 42 patients operated

more than 10 years before by Pfluger, who was one of the strongest advocates of the phakolysis, one of the operated, while two of unoperated eyes had lost all but quantitative vision through central chorioiditis. In the operated eyes there was a marked increase in the visual acuity, usually 2-4 times its former range and this can only be attributed to an increase in the retinal function. He remarks that fresh central changes furnish no contraindication, but rather seem greatly benefited; of course in reading the above report we must bear in mind that we are listening to the remarks of an enthusiast. There are many more favorable reports, but the above may be taken as samples. Briefly put, the advantages may be tabulated:

- (1) Relief from glasses.
- (2) Increase in visual acuity.
- (3) Cessation in the progression of the myopia.
- (4) Lessening the dangers of amotio retinae, retinal hemorrhage, and chorioidal changes.

THE DISADVANTAGES AND ADVANTAGES OF THE OPERATION.

When Fukala's operation spread over the world some years ago in a wave of tremendous enthusiasm, the old conservative operators shook their heads and waited for the bad results which are bound to follow an operation of this kind in a large number of cases. It was not very long before expressions of dissatisfaction arose from many sources, and the danger and hazard of the entire process was much discussed. Phakolysis has certainly many opponents and these can bring weighty objections to bear.

In any intrabulbar manipulation there is a source of danger from infection. This can be minimized by our present aseptic arrangements, by a thorough cleansing of the conjunctival sac with a stream of sterile salt solution, and avoiding operation upon previously infected conjunctivas. Still a percentage creeps into the statistics, of eyes lost from this cause. When Froehlich (17) states that the loss is so slight from infection that we need not consider it at all, then shows that about 2 per cent of his cases were lost in this manner and many more which were unpublished, then I think that some attention is really demanded.

Glaucoma follows the operation in a certain number of cases and also brings about some of the grievous effects. This increase in tension is of a double nature the one, easily combated and doing little harm, comes on from a too rapid swelling of the lens after

a thorough needling. When very severe a paracentesis may be required to reduce the tension; but still this relieves the eye. However, in aphakic eyes from some unrecognized cause, a glaucoma of the typical persistent and even malignant type arises and this may follow a simple myopia operation. Not a great many cases of this variety have been reported.

While some of the adversaries of Fukala have brought forth the loss of accommodation as a disadvantage, after a careful consideration, I feel that it should not be found under this head. Ostwall, Hirschberg, Salzmann and numerous others have all written upon pseudo-accommodation and find that in cases of high myopia very little is lost in this respect.

The consideration of the progression of myopia after an operation is a much disputed point, and this must be carefully considered, as some say, that the process is held in obedience, while others show that a further increase may be expected and that the destruction of the macular region continues as it did before. It is not my purpose to expound the various theories formed to explain the changes of the central retina, but merely to show from numerous statistics gathered, whether or not the disease is held in obedience.

Von Hippel (18) observed in 114 cases, that the central chorioiditis either developed or increased after the operation and concludes that the operation has not the desired effect in the checking of the disease. Panas (19) and Froehlich (20) also found that the macular changes and retinal hemorrhages continued after the cases were operated, not that it was worse than before, but still that the desirable results were lacking.

A great many cases were operated upon in von Schweigger's clinic at the Charite, and the conclusions were drawn by Haedicke (21). He noticed that when the process continued in the operated eye, the same condition prevailed in the one which had not received treatment, and *visi versa* a good result in the one followed a good one in the other. From these observations he was led to believe that phakolysis exerted no effect whatever upon myopia and that the course run by the disease was absolutely uninfluenced by the procedure.

Huber (22) quotes the late records of cases operated 5 and 6 years before in the Zurich clinic and brings forward very disadvantageous facts. He says that the operation does not prevent

the complication nor the progression of the near-sighted condition. The proportion of new macular disease in the operated eyes to the unoperated is very high. There were 14.67 per cent affected 5 or 6 years after the treatment, while the untouched cases showed only 7.02 per cent. Thus from these percentages we can say, that the danger is doubled by the operation. The opacities of the vitreous also seem to be increased, probably due to lacerations during the deep dissections. In all, Huber finds the operation not a success, and does not express himself upon the point when it may be attempted.

By far the most serious condition to be combated is that of detachment of the retina, for the fear of causing this is the one which prevents the attempted good even in propitious cases. Detachment is to be feared, for when it occurs the eye is irretrievably lost, despite the few recoveries reported by Deutschmann. But the advocates of the myopia operation have put themselves upon record, that the aphakic eyes are less liable to be lost from this complication. Simple reasoning however fails to bring about this conclusion, for the more manipulation brought to bear upon a myopic eye, the greater increase in the proportion of dangers to which it is exposed. In treatment of high grade myopia we tell our patients to avoid sudden strain, hard labor and danger of contusions. Again when a needling is performed, even the most skillful of operators may cut into the vitreous and the organization taking place here tends to pull the retina away from its attachment. Hemorrhage may also take place at the time of the operation and bring about the dreaded result. With these active dangers before us at the time of the operation, what are the final results, and do a greater percentage of operated eyes succumb to the *amotio retinae* than the unoperated cases? All high degrees of near-sightedness tend toward this termination, so that it is to be feared in any case, no matter what care the patient takes of himself.

The article by von Hippel (19) publishes the full results of 275 eyes operated between the years 1893-1905, and many of the earlier ones are still under observation, so that a fair opportunity has been given him to judge remote results of his treatment. Twelve of the cases disappeared as the results were so good they did not report for subsequent examinations. Of the remaining, 25 developed a detachment of the retina which number forms 9

per cent, although it is safe to say, that in half of these the operation had no influence. To make a comparison he brings forward 842 myopic eyes of more than 14 D. from his polyclinic histories, in which group there were 53 eyes spontaneously destroyed by the detachment. This is 6.3 per cent of the total. In his conclusion he states that if 6.3 per cent occur idiopathically in unoperated eyes we need hardly take into consideration a 9 per cent taking place after operation.

A great many may differ with von Hippel on this score, that $2\frac{1}{2}$ per cent increase is very large, but when you figure that the entire 9 per cent can not be attributed to the operation itself, his conclusions are not so unjustifiable.

Just as I was completing this paper, Hopner (23) published a long article upon the results of the Leipziger clinic after a protracted period of time. Not only are his own statistics used but those of Sattler, Uhltoff, Hirschberg, etc. Many pages of cases tabulated in order, and after a careful consideration the author tells us that retinal detachment is certainly no more frequent after, than before the operation. That under any circumstances it is about 9 per cent, and one-half of this being due to accidents and not spontaneous, as in the last paper published upon this subject, I think his conclusions are worthy of translation.

(1) The extraction of the lens in high grade near-sighted people up to the 30th year is to be recommended (Sattler's words.)

(2) It is advantageous to select nearly healthy eyes for the operation.

(3) Hemorrhages of the retina chorioiditic changes and thick opacities of the vitreous are not increased by the operation, however not bettered. The progress of the disease is not necessarily checked.

(4) Detachment in one eye forbids any attempt to the other.

(5) In favorable cases the advantages of binocular vision make it wise to operate the second eye, but at least a year after a good result.

The matter as it now stands is still in an unsettled state, but seems to be moving toward the exponents of the operation not with the enthusiasm which first marked the wave, but with a steady conservative approach, in certain selected cases. The real worth will only come to light after a great number of operators have published their clinical results, for upon these statistics alone, can

the real value be determined, and consequently, it behooves every oculist to lay bare not only his good, but also his disappointing cases.

After a careful survey of the literature which we have at present, the following indications alone seem to warrant the procedure:

(1) A myopia of at least 14 dioptries; this is the minimum, for 18-20 D. give even better results.

(2) The degeneration of the fundus must not be very far advanced or the vitreous greatly diseased, for under such circumstances a good vision can hardly be expected.

(3) If the patient can follow his daily occupation without discomfort nothing should be done. It is in those cases where the visual acuity is so diminished because of the decreasing size of the objects, that the interference is justified in order to allow the myope to continue at his trade.

(4) Patients over 40 years should not be operated upon, unless absolutely imperative, for after this age a needling and linear extraction will not meet the requirements, and a simple extraction in a high myope is not only exceedingly difficult, but hazardous. The extraction in capsule after the method of Major Smith is hardly applicable, because of the fluid vitreous present and its almost certain loss.

The conclusions which I draw are firstly—that the operation is not one of choice, but rather of indication. Secondly that it is not an exceedingly dangerous procedure, in fact the dangers have been exaggerated. Thirdly, that the advantages are many, and any relief in a position of this kind is well worthy of a careful consideration.

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Editorial

SEMICENTENNIAL OF PROFESSOR CARLO REYMOND OF TURIN.

The fiftieth anniversary of the medical graduation of this well known figure in ophthalmology will be duly celebrated by his associates, pupils and admirers throughout the world by a testimonial to which all medical men are invited to subscribe. The celebration will take the form of a public jubilee when as one of the evidences of their regard, a reprint of Prof. Reymond's original works will be issued by the committee in charge. We notice among the latter representatives of almost every European country: among them (outside of Italy) are Axenfeld, De Lapersonne, Fuchs, Haab, Hirschberg, Landolt, Leber, Motais, Pergens, Thomas Reid, H. Snellen, Stilling, Tscherning, Valude, Wicherkiewicz and many others. The Italian members of the committee are headed by Senator Professor L. Camerano, Rector of the University of Turin, and comprise many names familiar to students of Italian ophthalmology. The OPTHALMIC RECORD will be glad to receive and forward subscriptions to this fund; or they may be sent direct to Sig. Prof. Romeo Fusari, 52 Corso Massimo d'Azeglio, Turin, Italy. Prof. Reymond's valuable contributions to ophthalmology, as well as his gentle courtesies to those of our countrymen who have met him either at his home in Turin or abroad, constitute a certain claim on Americans which we feel sure will be recognized.

Reports of Societies

SECTION OF OPHTHALMOLOGY OF THE AMERICAN MEDICAL ASSOCIATION.

Report of the Committee on Collective Investigation Concerning the Ocular Muscles.

Lucien Howe, M. D., Buffalo; and Howard F. Hansell and Theodore B. Schneideman, of Philadelphia. Dr. Howe chose as associates to carry on this investigation, Dr. Howard F. Hansell and Dr. T. B. Schneideman, of Philadelphia. Circular letters were sent to all members of the Section on Ophthalmology to ascertain those most interested in the subject and willing to undertake a part of the investigation. There were 85 favorable replies and these members were then assigned certain questions on the anatomy and physiology of the extra ocular muscles. Copies of the letters sent out by the committee complete this preliminary report.

The Visual Fields in Hysteria.

A clinical study of fifty cases. Walter R. Parker, M. D., Ann Arbor, Mich. Dr. Parker in conjunction with Dr. C. D. Camp, who made the neurological examinations, has studied the visual fields in 50 cases of hysteria. A review of the history of the visual fields in hysteria shows the so-called French school leaning toward concentric contraction of the field for white as the characteristic stigma, while later writers, including Americans, lay more stress upon the occurrence of dyschromatopsia. Photographs of the visual fields in the 50 cases are appended to the article, as well as a tabulated report of the neurological findings and eye symptoms.

CONCLUSIONS:

1. Dyschromatopsia is more common than concentrically contracted fields in the ratio of 72 to 40.

2. There is no relation between the contraction of the visual fields and amblyopia, the former being present in 96 per cent of the cases, while the latter was found in 8 per cent.

3. There is no constant relation between the areas of anesthesia and concentrically contracted fields. Of the patients with anesthesia, 28.4 per cent showed concentrically contracted fields, while 75 per cent showed dyschromatopsia.

Note—Not a single case of hysterical hemianopsia has been recorded in either the ophthalmologic or neurologic clinics of the University of Michigan.

The suggestibility of the patients was noted in but few of the cases; otherwise the records were complete.

I wish to acknowledge the assistance rendered me by Dr. Geo. M. Waldeck in the compilation of these cases.

DISCUSSION.

Dr. E. C. Ellett, Memphis, called attention to the necessity for accurate perimetric observations. He had more frequently observed the uniform contraction for white rather than the reversal of colors. He quoted a case of traumatic hysteria in which the colors were readily perceived, but in which the field for white was greatly contracted.

Dr. Lucien Howe, Buffalo, asked if several tests with the perimeter had been made and found constant. He emphasized the importance of having the eye properly centered in the center of the perimeter arc and has devised a carrier for the perimeter which overcomes the difficulty.

Dr. Casey Wood, Chicago, stated that he had translated the chapter on hysteria for the Norris & Oliver System and so had become imbued with the ideas of Parinaud. Recently he had come to question the accuracy of Parinaud's views. Dr. Parker spoke of one case showing tubular vision and Dr. Wood wished to ask if he had noted peripheral amblyopia in others with concentrically contracted fields. He referred to the fact that these patients become rapidly tired, giving inconstant results when fields are taken at different times.

Dr. Geo. E. de Schweinitz, Philadelphia, said that it was important to clearly define dyschromatopsia, contraction of the visual field and amblyopia. The hysterical field is one which is contracted, showing insensitiveness to white light and with tubular vision. In certain cases the fields for colors are reversed. It is a mistake to take such a field as absolutely diagnostic of hysteria, as it is only one of many conditions which go to make such a diagnosis. Similar fields have been found in hemorrhage into the internal capsule, in Friedreich's disease and in brain tumor. Poisoning by lead, alcohol, tobacco, etc., produces similar fields. He would like Dr. Parker to explain just what he means by dyschromatopsia. He stated that hemianopsia never occurs in pure hys-

teria except as a temporary phenomenon or a stage in the development of amaurosis.

Dr. C. H. Marple, New York, had taken many fields recently in cases of brain tumor and found that inversion of the color fields was present in some but not in others. 50 or 60 cases used as controls and known to be normal, furnished several instances of color field inversion. He agrees that great care is needed in making the perimeter observations.

Dr. Walter Parker (closing) said that Dr. Ellett referred to one particular class of hysterics, those with amblyopia and that such fields could not be taken as a fair example of the visual fields in general in hysteria. He used the McHardy perimeter and his associate took all the fields. He is of the opinion that all cases of this sort with tubular vision have hysteria. He agrees with Dr. de Schweinitz that the field is only one point in the diagnosis of hysteria. He defines amblyopia in this connection as loss of central vision. The same field is obtained with the patient at twice the distance from the center of the perimeter arc as at the center itself.

Regeneration of the Cornea.

Meyer Wiener, M. D., St. Louis, Mo.: The author offers this as a preliminary report. The literature is briefly reviewed from the year 1763, including the details of animal experimentation carried out on the eyes of 22 rabbits by F. C. Donders and a study of 32 rabbits' eyes, 22 of which were examined microscopically. A number of cases from various sources are quoted to show the regeneration of cornea in human eyes and then the author's series of experiments upon rabbits are given. The cornea was removed in a flap of $2/3$ its thickness and including one-half to the entire corneal area. Six weeks later it was almost impossible to discover any opacity. Microscopic specimens show a gradual thickening of the cornea proportionate to the length of time which had elapsed since the operation.

DISCUSSION.

Dr. John Green, St. Louis, had examined the animals operated by Dr. Wiener and corroborated the statements as to the appearance of the eyes. The corneæ were of very even contour and only faintly nebulous with close oblique illumination. He thinks that a true regeneration took place because of the slight opacity

and the lack of individual facets as is usual where healing takes place by scar tissue.

Dr. William Zentmayer, Philadelphia, had noted corneal regeneration after removing a nodule in a case of keratitis and the result was a transparent cornea.

Dr. R. L. Randolph, Baltimore, said that the eyes of rabbits and lower animals generally show rapid repair. He had recently removed three lenses from the same rabbit's eye. Human eyes do not show such rapid healing, although they have similar bacterial flora to contend with. He is very skeptical as to the possibility of such healing in the human eye.

Dr. A. R. Baker, Cleveland, referred to cases of ophthalmia neonatorum which later in life showed fairly clear corneæ. He quoted a case of a severe corneal burn with complete opacity, which peeled off and in two weeks got entirely well. He is not very optimistic in such cases, however, but hopes for success along this line.

Dr. Miller, St. Louis, also saw Dr. Wiener's experiments and an operation on the human eye which appeared to be as successful as the animal operations. He is of the opinion that care as to detail and asepsis will accomplish much.

Dr. Wiener (closing) showed photographs of the operated corneæ. He thinks it is best to peel off the desired area of cornea in layers, as it gives a better result. He was led to undertake the work after seeing a case of regeneration following ophthalmia neonatorum. It has occurred as well in old as young animals. He is now treating some cases with dionin for comparison with untreated cases.

Scissors-Magnet Extraction of Iron from Eyeball.

Edward Jackson, M. D., Denver: Dr. Jackson's paper dealt especially with those difficult cases of steel or iron which have remained in the globe for some time and have become surrounded by exudate or lie imbedded in the coats of the eye. A resumé of such cases taken from the literature of the magnet operation serves as an introduction to the author's case reports. The foreign body was first localized by the Sweet method, then a scleral incision was made over the spot localized, first cutting through the conjunctiva after it had been drawn taut on the point of the knife. This insured a flap to cover the scleral wound. The scleral incision was usually 8 mm. The tip of a hand magnet was introduced unsuccessfully. Finally a small pair of scissors was intro-

duced in the direction of the fragment of iron or steel and the magnet applied at the scissors joint. Several snips of the scissors released the particle, which was then drawn out on the blade of the scissors, the magnet being still in contact. Former attempts of a similar nature consisted in the use of a strabismus hook or steel spatula attached to a magnet.

DISCUSSION.

Dr. Wm. Sweet, Philadelphia, had seen many cases where the uveal tract had been damaged after repeated efforts at extraction by the severe tugging produced when steel particles were imbedded. Bodies in the vitreous chamber do not usually become surrounded by exudate and have been successfully removed through the sclera many years after the injury. Exudates form rapidly about particles imbedded in retina or choroid. He is very enthusiastic about Dr. Jackson's method and is having a scissors attachment made for his magnet.

Dr. C. H. Marple, New York, approved of Dr. Sweet's solid attachment for the scissors. He had experienced the same difficulties as Dr. Jackson and had produced much traumatism in attempts at steel removal which this new method would doubtless obviate.

Dr. H. Gifford, Omaha, approved highly of Dr. Jackson's method. He described the inner-pole magnet and the delicate instruments which he has devised for operating upon the eye in its field.

Dr. W. H. Wilder, Chicago, suggested that one blade of Dr. Sweet's scissors attachment be made of non-magnetic material. He has used a magnetized tissue forceps to remove steel particles which have been drawn into the anterior chamber and finds it much more safe than to use a powerful magnet directly.

Dr. E. E. Holt, Portland, Me., believes in immediate magnet operation wherever possible and has used magnetized instruments as Dr. Jackson has done.

Dr. Donovan, Butte, Mont., prefers an X-shaped incision to a linear one. For anesthesia he uses hyoscine and morphine. He suggested having the scissors of soft iron as being more affected by the magnet than steel and that with a notch in the end of the scissors it could also be used as a forceps.

Dr. R. L. Randolph, Baltimore, spoke of the value of the X-Ray localization and of a recent case which had somewhat shaken

his faith in the method. A negative report as to foreign body resulted in enucleation, which disclosed a large piece of steel imbedded in the coats of the eye near the posterior pole.

Dr. Edward Jackson, Denver, (closing) thinks Dr. Sweet's form of scissors an advantage, although the difficulty of applying the magnet to the scissors in position in the eye has been exaggerated. The non-magnetic blade might result in not drawing the foreign body between the blades. The immediate operation is preferable, but need not deter one from operating in an eye undergoing siderosis, etc., even if considerable time has already elapsed since the injury.

The Accommodation and Donders' Curve and the Need of Revising Our Ideas Regarding Them—An Experimental Study.

Alexander Duane, M. D., New York, N. Y. The author introduces his subject by referring to Donders' work and the reasons for inaccuracies therein. The observations made in conjunction with Dr. J. B. Thomas were after the following plan. Each patient was made emmetropic by wearing his full correction determined carefully and usually under cycloplegic. His accommodation was then measured with Prince's rule, which gives the amount of accommodation in diopters. No subject was examined who did not show full 20/20 vision. The test object finally selected was an engraved black line 0.2 mm. in diameter and 3 mm. long, bisecting a dull-white card 3 mm. long and 1.5 mm. wide, the line to be held vertically against a background of black velvet. The illumination was diffused daylight coming from behind over the right shoulder for the right eye and vice versa. All measurements were made from the anterior focus of the eye, i. e., 13 mm. anteriorly to the cornea. The author's results show the accommodative curve to be less than that of Donders' up to 20 years of age, above Donders' from 20 to 45 years, and again beyond 45 years of age it falls below the curve of Donders'. The author lays stress on the necessity for repeated tests to avoid errors.

DISCUSSION.

Dr. Edward Jackson, Denver, said that Dr. Duane's results compared very closely with his own experiments on 3,643 persons from 2 to 70 years of age. Fine print was used in the tests, which were repeated to insure accuracy. The speaker measured from the anterior principal point of the eye instead of from the anterior

principal focus. It is impossible to draw any sharp line between the normal and abnormal cases, except a purely arbitrary one. He believes that accommodation of 1-1.5 D. in old age, 70 to 80 years, to be very exceptional but has seen such cases and has carefully excluded all sources of error in the examination and still has found an accommodative range of 1-1.5 D.. The speaker compared his own chart with Dr. Duane's and analyzed the reasons for the minor differences.

Dr. Alexander Duane (closing) said that he had found low ranges of accommodation in many cases which a year later showed a good range, the low range being due to neurasthenia in many cases. He also found that by exercising with the test card the accommodative range could be increased, not, of course, in cases of real paresis.

The Unreliability of the Astigmatic Fan or Clock Dial Test.

David W. Stevenson, M. D., Richmond, Ind.: The author undertakes to show why the astigmatic fan test is unreliable because of a lack of intelligent observation on the part of the patient, and because the test itself is founded on incorrect principles. The effect of various lenses used in the fogging system of refraction is given, together with figures showing the diffusion images seen by his own eyes. The errors are shown to be due to the irregular astigmatism present in the refractive media of all eyes. Accurate refraction should include tests made at varying distances and with varying illumination and with the aid of discs having perforations of 2, 3 and 4 mm. A reliable cycloplegic is essential. A critique is included of the recent article of D. B. St. John Roosa, entitled, "A Proper Method of Determining Errors of Refraction and Their Actual Relations to the Ailments of the Human Body," *Journal American Medical Association*, Feb. 13, 1909, p. 543.

DISCUSSION.

Dr. J. Thorington, Philadelphia, considered the clock dial test necessary when no cycloplegic is used. 58 per cent of cases select a plus cylinder at 90 degrees or a minus cylinder at 180 degrees. The vertical and horizontal lines should cross at the dial center and the patient be instructed to look at this crossing. He prefers retinoscopy, yet by comparison the results of the ophthalmometer and later at the clock dial, the difference between the corneal and lenticular astigmatism may be known.

Dr. Verhoeff, Boston, said that Dr. Stevenson had not studied diffusion images properly, as he had used a bright light instead of a black spot on white paper. Monochromatic aberrations of the eye undoubtedly affect the appearances of the clock dial, but not to such an extent as the essayist states, and these aberrations apply equally to test letters. The charts are preferable to test letters for astigmatism and are less fatiguing to the patient, saving much time. Contrary to Dr. Stevenson's statement, text-books never adequately describe the test.

Dr. Park, Harrisburg, Pa., finds his patients do not answer correctly when tested by the clock dial and prefers the retinoscope, even in undilated pupils.

Dr. Wilkinson, Washington, D. C., advocates retinoscopy with or without cycloplegic and considers the astigmatic charts inaccurate. The ophthalmometer shows results in his hands and he thinks that it is too carelessly used by those who condemn it.

Dr. Leartus Connor, Detroit, Mich., thinks the clock dial a valuable adjunct to other methods, but would not depend upon it absolutely, but use all methods.

Dr. Edward Jackson, Denver, does not use the clock dial test, chiefly because of the inaccuracies, especially when the pupils are dilated. Again in cases where it is impossible to correct the astigmatism, so that the lines all appear equal, the patient may feel that the work is incorrect.

Dr. John Green, St. Louis, uses Dr. Verhoeff's chart and for dynamic refraction considers it indispensable. It requires much time, however.

Dr. Wendell Reber, Philadelphia, agreed with Dr. Jackson and felt that time spent in educating a patient to appreciate such a test would give better results if used in other ways.

Dr. D. W. Stevenson, Richmond, Ind., (closing) said this astigmatism fan test, as well as fogging methods, would soon be given up as unsatisfactory. If the pupil is small the lines appear alike even in the presence of some astigmatism.

Simple Fibroma of the Orbit.

Wm. E. Gamble, M. D., Chicago: Simple fibroma of the orbit is defined as one that springs from the retrobulbar connective tissue, i. e., the orbital fascia within that cavity. The orbital periosteum sheath of the optic nerve, capsule of lachrymal gland

and tendons of ocular muscles are given in the order of their frequency as organs of fibromata. Fibromata have also been known to occur subcutaneously and even cutaneously in general fibromata. Microscopically, the diagnosis lies between endothelioma and fibroma, as frequently many blood vessels occur. The chief distinguishing feature is the matting together of the peripheral fibres to form a capsule.

DISCUSSION.

Dr. Geo. F. Keiper, Lafayette, Ind., would like to see sections from other parts of the tumor, as well as the adjacent normal tissue. He drew attention to a statement by Parsons that endotheliomata require careful examination in some cases to distinguish them from simple fibromata and it is not unlikely that further research will eliminate simple fibroma from the list of orbital growths. He thinks endothelioma should be discarded and let sarcoma be called sarcoma.

Dr. G. Oram Ring, Philadelphia, said that benign tumors were of long standing. He had studied a case with a tumor of seven years growth where he could not exclude malignancy. It is probably benign if no metastases are found and the globe rotations are not seriously interfered with. Sinus diseases should be carefully considered where there is much displacement of the globe. The case referred to had been called malignant and also sinus disease, both of which were found incorrect at operation and the microscope showed simple fibroma.

Dropsy of the Optic Nerve Sheath.

John A. Tenney, M. D., Boston: In speaking of optic neuritis the author mentions the theory of Schmidt Rimpler and Manz, who believed it to be caused by interference with return flow of blood through the optic nerve, produced by dropsy of the nerve sheath, while Gowers, Brailey and others consider it to be due to an inflammation extending downward to the eye from the brain. Cases are quoted from the literature showing relief from headaches and blind attacks from escape of cerebrospinal fluid with immediate aggravation of symptoms when the escape of fluid was interfered with. Eleven cases in all have been seen by the author, three of which are given in detail. One showed double optic neuritis, one seemed normal and the ophthalmoscope findings were not given. Potassium iodide has been successful in all cases.

DISCUSSION.

Dr. L. Webster Fox, Philadelphia, has seen such cases in a study of optic neuritis. Together with Drs. Potts and Weisenberg, the speaker has operated by decompression with marvelous results to the nerve heads. He spoke of a case with optic neuritis where bending over restored the vision temporarily. The patient died and at autopsy a small tumor was found between the third and fourth ventricles the size of an almond. Bending the head threw the tumor into a new position and allowed escape of accumulated fluid in the third ventricle. The microscope showed a dilated space between nerve sheath and trunk four or five times that usually seen.

Dr. A. R. Baker, Cleveland, had devised a curved point syringe to draw off the fluid from the nerve sheath, but found the results only temporary and he had abandoned it. He had also tried and abandoned spinal puncture and now used the decompression operation.

Dr. J. A. Tenney, Boston, (closing) always tries milder measures before operation and especially in the cases where no definite ophthalmoscopic signs were manifest he had been particularly successful.

Reflex Aural Neuroses Caused by Eyestrain—With Report of Cases.

Samuel Theobald, M. D., Baltimore, Md.: Aural reflexes are more common than is generally thought. Tinnitus aurium is the most common. Other symptoms are muffled or stuffy sensations in the ears, slight pain felt as often about the ear as within it, deafness shown by tuning fork tests to be in the perceptive apparatus. The relation to the eyes was shown by disappearance of ear symptoms after relief of the eye strain; the ear affected was usually on the side of the worse eye and the symptoms were worse during use of the eyes. The tensor tympani is supplied by the fifth and the stapedius by the seventh so that the reflex is obvious. The interference with hearing and the muffled sensations are probably due to vasomotor disturbances in the labyrinthine vessels. Four striking cases are quoted, one being a record of his own case.

DISCUSSION.

Dr. Park Lewis, Buffalo, said that four or five observers had been working independently upon this subject. He referred to a

case, highly neurotic, suffering from a corneal ulcer with considerable blepharospasm. With each lid contraction there was a sharp pain in the corresponding ear. Healing of the ulcer stopped the ear pains. One patient felt moisture in the ears whenever a cycloplegic was used. Another found that glasses in the theatre produced deafness and confusion in hearing. A study of such cases may enlighten us as to the paths by which these pain impressions are carried.

Dr. E. E. Holt, Portland, Me., always examined the eyes of all ear patients with tinnitus and has prescribed glasses with relief of the tinnitus. In such cases all organs supplied by the fifth nerve should be examined.

Dr. Lucien Howe, Buffalo, drew attention to the reflex cough from aural irritation and the noises made by the eye muscles in contracting, explaining that associate contraction occurs in the muscles within the middle ear. He suggested imbalance as a term to supplant eyestrain.

Dr. S. D. Risley, Philadelphia, said that the relation between sense organs had been well brought out. The sight of a violin makes the speaker see violet. He had relieved a case of tinnitus of high pitch by means of glasses.

Dr. Theobald (closing) protested against criticism of the term eyestrain, as he thinks no better term could be used to convey his idea.

Amethyst-Tinted Lenses.—A Preliminary Communication.

L. Webster Fox, M. D., Philadelphia: The author mentions the various forms of tinted glass used up to the present time. He was led to use amethyst glass naturally tinted by the sun's rays for the gold blindness of dentists. The ultra-violet rays are considered responsible for the natural tinting of glass by their action upon minute particles of metallic potassium and sodium in the glass. Such glass is common in Philadelphia and the author has found it also in Montana, Colorado, Florida, Maine and other States. The electric light is particularly rich in ultra-violet rays and we now find very many cases of electric ophthalmia among those who do close work with this form of illumination. The lens protects the retina from the violet rays as is seen by the lengthened spectrum of eyes operated upon for cataract. Experiments are being undertaken to artificially tint glass, due to the

scarcity of the natural article. The author grades the tints, numbering them 1, 2 and 3, the deeper tints being used in the more severe cases. Marked relief has been noted in the case of stenographers, seamstresses, dentists, printers, etc., who use artificial illumination.

DISCUSSION.

Dr. W. L. Pyle, Philadelphia, had used amethyst lenses for ten years, although he is less enthusiastic now. The naturally tinted lens is necessary, as the artificially tinted glass contains reddish tints and aggravates the condition. This tint is best suited for work by artificial light and discounting the psychological element, they have been of great value.

Dr. Williams, Boston, had seen the demonstrations of the effect of sunlight in coloring glass an amethyst tint. He asked Dr. Fox if he had seen any comparison between amethyst glass and amber glass. He mentioned a glass of high index, a heavy lead glass which cuts off the blue and ultra-violet rays very completely and which is of service in photophobia and in high myopia and is only faintly yellow.

Dr. Barton Pitts, St. Joseph, Mo., has never seen any benefit from lenses of any tint except in special occupations, as exposure to light from furnaces, etc., and sunlight on water and pathological conditions of the retina and conjunctiva. He believes the clearer the lens the better.

Dr. Friebis, Philadelphia, referred to the writings of Scredonius, who stated that amethyst glass was used in photophobia and was used by Nero, who was quite myopic.

Dr. W. L. Pyle, Philadelphia, understood that Scredonius referred to the emerald as enabling Nero to see better.

Dr. Friebis wished to call attention to the fact that use of tinted glass was historic and agreed that he might be in error.

Dr. Edward Stieren, Pittsburg, said that Nero wore an emerald in viewing gladiatorial combats. In the present tinted glass is not needed as a relief from daylight, but from the newer lights, electric, etc., rich in ultra-violet rays. He mentions an invention of glass said to have the property of cutting off all but luminous rays.

Dr. L. Webster Fox, Philadelphia, (closing) said that he at first thought the ultra-violet rays responsible for the eye trouble, but found it was really the yellow and green rays and that ame-

thyst glass modified the irritating yellow rays. In reply to Dr. Williams, amber glass was tried but the color was objectionable.

Some Minor Points in the Surgery of Cataract.

Howard F. Hansell, M. D., Philadelphia: The author suggests that accurate reports of failures in cataract extraction with the reasons therefor would be of greater value than reports of successes. He mentions as requisites, experience upon animals' eyes and as an assistant, good vision, a steady hand, good illumination, coolness and judgment. It is as important for the operator to be physically fit as that his asepsis be perfect. Twenty-four hours is sufficient time for a patient to be in the hospital before operation, thus avoiding prolonging the fear of operation, strange surroundings, etc. Preliminary iridectomy has been shown to be the operation of choice by Reber's collection of the opinions of authorities. The author prefers the preliminary iridectomy whenever the patient's condition of life will permit.

DISCUSSION.

Dr. Bruns, New Orleans, said that he had arrived at the same conclusions as Dr. Hansell regarding preliminary iridectomy. In addition the iridectomy shows how the patient will act during the operation, teaches him it is not such a terrible ordeal as he may have imagined and leaves bloodless field for the extraction. Again, the operation may be finished more rapidly. Contrary to Dr. Hansell's experience, however, he has not always found the iris well anæsthetized with 5 per cent cocain and following Dr. Hansell's directions minutely. He anæsthetizes the area where fixation forceps are applied by a sub-conjunctival injection of a solution containing 10 m. adrenalin 1-1000, 10 m. of 4 per cent cocain and 20 m. normal saline solution.

Dr. G. C. Savage, Nashville, Tenn., believes the incision should include the conjunctival flap. This flap should be turned down over the cornea where it will adhere. The larger the flap the better. He makes the least pressure on the eyeball possible in extracting the lens in order to avoid escape of vitreous. When the lens presents from the pressure he transfixes it from behind, stops all pressure and lifts it out of the eye. The spatula is then used to replace the flap.

Dr. Lucien Howe, Buffalo, uses a small forceps designed to hold the eye quiet by grasping the tendons of the internal and ex-

ternal recti muscles. They cause some pain. In some cases he uses a pair of iris forceps bent to grasp the lens as it presents, much as Dr. Savage described.

Dr. Mark D. Stevenson, Akron, Ohio, gives his patients some one of the bromides an hour before operation. If no contra-indication 15 minutes before operation, they receive a hypodermic of morphine and atrophine. Sometimes he uses full anæsthesia, but usually injects a few drops of $\frac{1}{2}$ per cent cocaine, which also aids in making the conjunctival flap.

Dr. G. Oram Ring, Philadelphia, approved in toto what Dr. Hansell had said. He invariably makes a preliminary iridectomy. He prefers daylight to electric light. An 8 per cent solution of cocaine is always used and the speculum is removed immediately after the section is made.

Dr. Oliver Tydings, Chicago, said that there were three sources of trouble in cataract extraction, infection, pressure on the globe, now avoided by use of a lid elevator and, third, advice to the patient to look downward avoids loss of vitreous.

Dr. A. R. Baker, Cleveland, avoids delirium following extraction by putting the patient in the hospital a day before the operation to become accustomed to his surroundings. He operates without a speculum, grasping the superior rectus tendon, which keeps the lid out of the way. He prefers preliminary iridectomy.

Dr. Davis, New York, prefers the conjunctival flap as the wound heals more rapidly, but too large a flap laid over the cornea, as suggested by Dr. Savage, obscures the view of the iris.

Dr. W. B. Marple, New York, agreed with Dr. Hansell as to the value of preliminary iridectomy. It offers the opportunity to study the patient during the operation, when the risk is least. He referred to a case where the eye would have undoubtedly been lost if the large section for extraction had been made, as the patient squeezed up his lids and was uncontrollable. After training resulted in a successful extraction. He does not believe iridectomy can be made absolutely painless.

The Expression of Cataract in Its Capsule—With Report of Forty Operations.

II. V. Wurdemann, M. D., Seattle, Wash.: The author credits the capsular operation to A. Pagenstecher, who first deliberately performed it in 1865. Historical references follow, mention being specially made of the work of Major Smith with the

criticisms thereof. The instruments are described and also the variations, both in instruments and in methods employed by various operators. A $2/5$ corneal incision with conjunctival flap and extraction in the capsule for all immature or hypermature lenses and extraction with capsulotomy for all mature lenses are the operations of choice. Discission in children is best. It is no operation for the beginner or even for the average operator. A minute description of the operation follows with case histories and a table showing the type of cataract, complications, loss of vitreous, disposition of capsule, number of instruments entering eye, form of incision, etc. Results in patients living under our conditions in this country are necessary to determine the final place for this operation.

Experience in the Expression of Cataracts in the Capsule by the Smith Method—With a Demonstration of the Steps of the Operation on a Model of the Eye.

D. W. Greene, M. D., Dayton, Ohio: No other operation offers such a satisfactory disposition of the capsule, which is the chief trouble in the after-care of cataract operations. Some added risk at the time of operation is more than compensated for by the better vision attained and the freedom from complications due to soft lens matter. Statistics of the old and new operation are given. The author has learned that success depends upon the attainment of a high degree of skill, technical knowledge and the imitative faculty, rather than any previous skill gained in doing the ordinary operation. Together with Major Smith, he considers the operation in a stage of evolution. For immature cataracts it is the most satisfactory operation. All agree that it is desirable to remove the capsule with the lens, but all are afraid of loss of vitreous with retinal detachment, a result borne out by available statistics. In fact, the statistics show as small a vitreous loss as ordinary extraction methods and in Smith's reports even less. The author's cases in general have shown much smoother, uncomplicated healing than any similar series with capsulotomy; indeed, the accident of ruptured capsule and escape of lens matter into the anterior chamber has caused iritis, etc. It is essential that during expression of the lens the patient looks straight forward or upward, *never downward*. The operation is described in detail. Pressure with the hook should be steady and equal and never excessive. The cornea should be kept moist and never touched at

the center. A table of the results in detail accompany the article.

Expression within the capsule offers the following advantages:

1. A cataract can be removed at any stage.
2. No discission is ever necessary.
3. There is comparative freedom from postoperative inflammations.
4. There are no capsule entanglements: prompt healing is the rule.
5. The method is especially adapted to institutional work: one operation does all.
6. No ripening methods need be tried.
7. The result is better average vision, which does not change with time, if the fundus conditions remain favorable.

The disadvantages of the method are the following:

1. The only important one is greater liability to loss of vitreous for the average operator.
2. From a cosmetic point of view the wide updrawn pupil (if it results) mars the appearance of the eye, while it may not be a disadvantage to vision.
3. And lastly, a skilled assistant is always necessary in performing the operation.

The article closes with a comparison of 75 capsular operations with 75 previous cases operated upon by other methods.

DISCUSSION OF PAPERS OF DRS. WURDEMAN AND GREENE.

Dr. Peter Callan, New York, has used this operation in cases of dislocated lenses with good results. He thought too much traumatism attended the capsular extraction. Major Smith uses it for cases living under different conditions entirely from those of our own patients. He has been afraid to try the operation, being well satisfied with the old method. He sounded a warning against the use of this method in any but the most experienced hands.

Dr. Arnold Knapp, New York, stated that from personal knowledge of Major Smith's work, his statistics are entirely accurate. The operation is more difficult than the ordinary method and even in the best hands more vitreous is lost. Only accurate statistics of the life of eyes so operated can determine its comparative value. He had observed iritic adhesions following this operation due to the danger of vitreous loss, when attempts at iris replacement were made. It gives a beautiful result when uncom-

plicated. The age of the Indian patients is really the same as ours, as they mature earlier there.

Dr. Walter R. Parker, Detroit, has operated upon 23 cases by the capsular method. Three were failures, one eye was lost by panophthalmitis following operative mania. In the remaining 19 cases average vision 2 weeks after operation was 6/36, less than the average vision of the previous 20 extractions by the regular method. 21 per cent of the cases showed vitreous loss, which did not influence the result. No iritis. It is a much more difficult and trying operation than the classical one. Keratitis is more frequent. A trained assistant is essential, as well as proper instruments.

Dr. W. H. Wilder, Chicago, said that results should be carefully studied. The first essayist reports 40 cases, three of which were finished with the wire loop to avoid possible vitreous loss, and in 5 cases there was no record made, thus reducing the series. The essayist has lost vitreous in only 5 cases of a selected series of 32, while Major Smith in selected cases reports 5 per cent vitreous loss. The essayist finds only 40 cases suitable out of 174. One case operated in Dr. Wilder's clinic by Dr. Greene was perfect, several showed violent reaction and lattice-work keratitis, which usually clears up. One case had corneal opacity. We must have statistics of work done under our own conditions before adopting this very difficult new procedure.

Dr. Freudenberg, New York, said that Major Smith's first operations were performed at the New York Eye and Ear Infirmary in Dr. Gruening's clinic, with Dr. Arnold Knapp as assistant. It was then noted that intense pain was complained of and that it was a longer operation than the old method. The reaction was severe and striped keratitis resulted, with severe irido-cyclitis in one eye, resulting in almost complete loss of vision. A herpes corneæ developed in another case, but healed with 20/50 vision.

Dr. L. Webster Fox, Philadelphia, referred to work done with Dr. Greene at Dayton, Ohio, where he assisted at 7 or 8 capsular extractions. Afterward he operated on five cases with three ideal results. The fourth lost vitreous and had considerable reaction and the fifth was lost after vitreous prolapse and collapse of the globe. He believes that more experience is needed, such as many operations on pigs' eyes, and thinks this will be the future operation in selected cases.

Dr. Frank Allport, Chicago, thought that we should be slow to abandon a tried operation for one evidently requiring special skill, only to be acquired from plenty of material. Major Smith and Dr. Greene both have plenty of material and may, therefore, continue to follow this method, but for one with perhaps 25 senile cataracts a year to do an operation which requires even more cöoperation from your patients is extra hazardous.

Dr. Wiener, St. Louis, has done 42 capsular extractions, in 2 of which the capsule ruptured and 7 had vitreous loss. Three of the cases returned with a membrane across the pupil. He lost one eye from prolapse of vitreous from coughing on the third day after the operation. Ultimate results must be studied before this operation is fully accepted.

Dr. Clark, Columbus, O., confirmed Dr. Greene's results. Dr. Greene had operated on a case on which Dr. Clark had performed a preliminary iridectomy and after a failure by the old method secured 5/30 vision in an eye which had developed glaucoma following the first attempt at extraction.

Dr. Mark D. Stevenson, Akron, O., had operated upon 14 cases. Two were failures from rupture of the capsule and one had severe iritis. Thus far all have good vision. He thinks the corneal incision should be large with a small conjunctival flap at the upper margin. It is necessary to have the lens turn over, blocking the incision during the extraction and in one case where this did not occur, vitreous was lost. He uses a Pagenstecher glass spatula for expressing the lens. He does not remove iris, but cuts it from pupillary margin to base.

Dr. J. W. Millette, Dayton, O., has been associated with Dr. Greene in much of his work and attests that he has approached the work in the proper spirit and has given time and unshaded statistics. The assistant's work is to control the lids, the upper with a Noyes elevator and the lower with the index finger, with the patient looking directly at the ceiling. After the iridectomy the large hook replaces the Noyes elevator and this breaks the action of the orbicularis. The assistant is considered by Major Smith to be almost as important as the operator. Practice on animals' eyes is unsatisfactory unless a live dog or rabbit is used. Properly performed there is no need of great violence or pressure. The cosmetic effect is usually not so good as with the old method. The advantages are permanent removal of the capsule, practically no

post-operative complications and better vision. 75 previous cases similar in every respect after the old method averaged 20/40 vision, while these last 15 by capsular extraction averaged 20/29, vision, including 2 cases with only P. L. and one with no vision.

Dr. Wurdemann, Seattle, (closing) asked the members to try 10 operations before rejecting the operation on theoretical grounds. Where the whole ligament ruptures and the whole lens comes straight out, more vitreous is lost than when the lens turns out. Post-operative complications are much less frequent. The keratitis, he thinks, is often caused as much by strong solutions of cocaine and bichloride as by the corneal pressure. Animal experimentation is necessary to acquire a safe technic.

Dr. D. W. Greene, Dayton, Ohio, said that his results warranted his continuing the capsular extraction as a routine, not only in selected cases. Drs. Casey Wood and Edward Jackson operated in Dr. Greene's hospital and can attest that no great pressure is needed. Major Smith states that it is untrue that he never sees his cases again, as they usually return. Refraction is not attempted for at least 30 days. There was one glaucoma in 98 cases. He has never seen a case of keratitis which has not cleared up. Proper technic and rapid work prevent keratitis. The lattice work effect is frequently in the anterior layers of the vitreous and always clears up. He advocated careful statistics to determine what the future of the operation shall be.

Dr. Casey Wood, Chicago, said that in company with Dr. Edward Jackson, he had recently spent two days in witnessing and assisting at operations for extracting the lens within the capsule. The work was done with Dr. Greene at St. Elizabeth's Hospital, the old Soldiers' Home and Dr. Greene's private office in Dayton, O., and included careful examinations by oblique illumination, ophthalmoscopy, etc., of cases previously operated by the so-called Indian method and a comparison with cases operated upon by other methods. Nine operations were witnessed and 47 previously operated cases were studied. Patients in all but two cases said that they had experienced no pain at the time of the operation or afterward. He saw no loss of vitreous, although both he and Dr. Jackson delivered the lens in two cases, both being inexperienced in this particular method. No cases of glaucoma or detached retina were seen. Vision was found to be even better than reported by Dr. Greene, showing improvement rather than loss of vision usu-

ally seen from opacification of the capsule. There were very few traces of iridic or capsular incarceration, media were unusually clear and the large black pupil gave a clear view of the fundus. Scleral and ciliary injection seemed in general more persistent than in cases operated by the old methods. Serious corneal changes were no more frequent than in the older operations. There were seven cases showing exudates in the posterior chamber, two evidently being vitreous hemorrhage and five deposits in the hyaloid membrane. More than a majority of the pupils were displaced upward, marring the cosmetic result and very likely lessening central vision. Dr. Wood's opinion is that, given an experienced, intelligent and skillful operator with a tried and equally experienced assistant and counting success entirely from the standpoint of the amount, quality and persistence of central vision 6 months after the operation, the Smith procedure is the best method for extracting all forms of senile cataract.

CHICAGO OPHTHALMOLOGICAL SOCIETY.

Meeting of March 8, 1909.

DR. FRANK ALLPORT, President, in the Chair.

Symposium on Syphilis—Extraocular Syphilis.

Dr. Casey Wood read a paper on Syphilis of the External Eye. He drew attention to luetic affections of the lachrymal gland, which he regards as rare.

Chancre of the lid is readily confused with suppurating chalazion and even with an acute purulent dacryocystitis. Gumma of the eyelid is another rare disease. Lues of the conjunctiva includes mucous patches, gumma, chancre and other syphilides.

Although the older ophthalmologists believed the sclera to be immune from attacks of syphilis we know this contention to be unfounded, although sclerotic alterations due to lues are rare and prone to be regarded as non-specific or as tubercular.

Tarsitis syphilitica is rather uncommon, although the diagnosis, by modern means, is easily possible.

The lachrymal apparatus often suffers—especially in conjunction with nasal duct obstruction, the result of periosteal and bony diseases—the luetic origin of which is always to be suspected.

By far the most common luetic disease of the external eye, mostly due to congenital infection, is interstitial or parenchyma-

tous keratitis. Probably 75 per cent of the cases are due to hereditary syphilis. Dr. Wood entered fully into a consideration of its treatment and believes that hygienic measures—outdoor life, tonics, etc., are of more importance in the general conduct of the case than specific remedies.

The Diagnosis of Syphilitic Eye Lesions by Means of the Spirochaete Pallida and the Serum Reaction of Wasserman.

Dr. B. C. Corbus read a paper on this subject.

With the discovery of the spirochaete came its demonstration with the staining methods, which at first was more or less successful in skilled hands, but the demand for a simpler and more reliable method, led Richert, the instrument maker of Vienna, to reintroduce the dark ground illuminator. Here we have a method which is extremely simple, the technique of which can be mastered by the average physician.

During the past 18 months Dr. Harris and Dr. Corbus have examined some two hundred cases. These have been confined to primary lesions on the penis, hands and lips and secondary lesions, comprising condylomata, mucous patches, papules and enlarged inguinal glands.

Numerous English and American ophthalmologists lay considerable stress on the fact that the spirochaete are found in apparently healthy eyes of fetuses and infants who have died from congenital syphilis. This is not at all surprising when we realize that the fetal circulation is fairly alive with the organisms and that they are easily demonstrated in every organ, particularly in those organs where there is an abundant blood supply, as, for example, the choroid coat of the eye.

From the preceding we would be led to presume that primary and secondary lesions of the eye are extremely rare. This in a measure is true; but it is highly probable that these conditions have been overlooked on account of insufficient means for diagnosis.

With the aid of the dark ground illuminator we have a rapid, reliable and simple method of differentiating these ulcers, and as a further means of diagnosing syphilitic eye lesions we have the serum test of Wasserman, Neisser and Bruck.

Whether the limitations of this test extend beyond the mere diagnosis and permits us to judge in some degree of the effectiveness of a cure time alone will tell. The tendency of the modern

treatment of syphilis is toward a biologic treatment; that is, to control the treatment with the Wasserman reaction. Of one thing we are positive: that the Wasserman reaction gives us control of the diagnosis after the period of second incubation, no matter what length of time has elapsed, provided the patient is not cured.

Unfortunately, the Wasserman reaction is complicated. It requires time, patience and careful work, and each series of tests must be controlled by known normal and syphilitic sera. Statistics in regard to the value of this reaction are now available in large numbers and there seems to be no branch of medicine or surgery that is not benefited by this discovery.

Dr. Corbus and Dr. Harris concluded:

1. That spirochaete pallida are present in all syphilitic lesions, including those of the eye.

2. In chancres and mucous patches, the diagnosis should be made by the demonstration of the spirochaete.

3. All other lesions of the eye of syphilitic origin may be diagnosed by means of the Wasserman test.

4. Eye conditions depending upon pathological changes in the nervous system of syphilitic origin may be diagnosed by the Wasserman test.

5. All doubtful cases that might be explained on a syphilitic basis should be given the Wasserman test.

Dr. Corbus and Dr. Harris explained in detail the Wasserman test and demonstrated the living spirochaete before the society.

Intraocular Syphilis.

Dr. William H. Wilder read a paper on the above subject, an abstract of the principal points being as follows:

Syphilis is the cause of from one per cent to three per cent of all eye diseases. By far the largest number of all syphilitic lesions of the eyeball are of the intraocular structures.

The iris and ciliary body are more frequently affected by syphilis than any other part of the eye. Syphilitic iritis usually manifests itself as a plastic inflammation. It affects one eye in the majority of cases, but one-fourth of them are bilateral. The appearance of the disease in the second eye may be considerably delayed, sometimes for a year. With the exception of the papular or condylomatous form, separately considered, there are no marked distinguishing features that speak for the specific etiology of the disease, and one must rely upon the history and other manifesta-

tions of syphilis to determine the exact nature of the process. Iritis, condylomatous or papulosa, is supposed to be characteristic of syphilis. One, sometimes two or more, grayish yellow or reddish brown nodules appear on the papillary margin of the iris, and at this site there is usually a posterior synechia. About 8 per cent of cases of syphilitic iritis present this feature.

There has been considerable discussion as to the nature of these nodules, some regarding them as condylomata and others as true gummata. When appearing in the secondary stage, as they usually do, it is probably nearer the truth to call them condylomata. True gumma of the iris may form in the later stage of the disease. It frequently affects the root of the iris, but more frequently pushes forward from the ciliary body. The disease usually appears at the time of the syphilides, about six months after the initial lesion, but it may appear before or be delayed for a year or more. The course is much like that of an ordinary case of iritis, but on the whole the prognosis is rather more grave. Especially true is this of the condylomatous and gummatous forms, for many of these eyes are lost because of the severity of the inflammation. Except when the papular form is present, which is rather characteristic, one cannot be sure of the syphilitic nature of a given case of iritis. The distinct history of hard chancre and the presence of syphilidis and other luetic manifestations make the diagnoses reasonably certain. However, in the majority of cases the clinical evidences are not sufficient to enable us to distinguish the syphilitic from other forms of iritis, and this is even more true of cyclitic, choroiditis, retinitis and optic neuritis.

The spirochete pallida has been found in the aqueous humor by some observers, and this test might be made use of for differentiation. The recent reports on the value of serum diagnosis developed by Wasserman and Plant from the principle of complement fixation, hold out the hope that a method has been discovered that will be of great value to the ophthalmologist in determining the exact nature of certain obscure lesions of the eye.

Choroiditis frequently occurs as a complication of ididocyclitis. There is no clinical appearance that is distinctly characteristic of syphilis in any of the lesions of choroid or retina, with possibly the exception of diffuse chorio-retinitis.

Acute irido-choroiditis manifests itself by an increase of the evidences of inflammation in a case of iritis. The vision is reduced

and the tension lowered. Numerous opacities in the vitreous make it impossible to see the fundus. The prognosis is grave, for the retina may become detached and the eyeball may shrink.

Treatment of Syphilis.

Dr. W. L. Baum presented this feature of the subject.

Dr. Thomas L. Dagg stated that the diagnosis of syphilis by means of laboratory methods has become popular by reason of its accuracy, although, as stated by Dr. Corbus, the technique is beset by many difficulties. The spirochete can be demonstrated in the lesions, thus making the diagnosis absolute, but the staining methods are far from being satisfactory. The Spiegel condenser method is satisfactory when the spirocheta is present, but is of no value whatever in a negative way. The Wasserman reaction is valuable when positive results are obtained, but the test is beset with difficulties. The use of the organ extract is liable to be made difficult because of the age of the extract; therefore, Dr. Dagg and his co-workers are now investigating the method of Noguchi, who employs lecithin as an antigen, and he uses human blood as well as the hemolytic inactivated serum prepared from human blood. This simplifies the method not only for the biological laboratory, but also for the general practitioner. The method is still in its infancy, but Noguchi's results are very gratifying and positive findings are fully as frequent as with the original Wasserman test.

Dr. Henry Gradle saw a striking instance of tarsitis, which he followed to recovery, occurring in a female with a definite syphilitic history, although there were no free manifestations at the time. The tarsus was enormously swollen, and, because of a feeling of fluctuation that was present, an incision was made with the hope of finding fluid. None was found. Anti-syphilitic treatment was ineffective until after about three months, when the disease gradually disappeared, and after four or five months there was no evidence of it and the tarsus was intact. Whether recovery was due to the treatment could not be determined in this case.

As to the etiology of interstitial keratitis, Dr. Gradle is convinced that it is easy to determine whether syphilis or tuberculosis is the cause of keratitis. If the affection occurs in both eyes, either simultaneously or in close sequence, beginning as a cloudiness at the periphery and spreading over the entire cornea, with the formation of blood vessels in the deeper strata, it is always a case of syphilis. Tuberculosis is usually monocular, and no new

vessels are formed in the inflammatory tissue. Hirschberg, he said, laid stress on the fact that one can always demonstrate new vessels in a keratitis of syphilitic origin. The prognosis is in inverse proportion to vascularization. The cases showing the greatest formation of vessels in the cornea from the start are most likely to prove serious, and to leave the greatest optical disturbance. Dr. Gradle has seen only one instance of absolute recovery of perfect transparency of the cornea. The history was beyond question. Vascularity was marked. The picture was not typical, but involved both eyes and began as a peripheral cloudiness which spread over the entire cornea, clearing up in four or five months and leaving the cornea absolutely transparent. The history of these cases is exceedingly prolonged. Dr. Gradle has known a few cases to pass practically through the entire period of climaxes and recovery to the limit with six or seven months. Sometimes vascularization is absent entirely, and these cases usually go on to a speedy recovery. He has known one case of almost complete blindness due to persistent opacity.

Dr. Gradle agreed with Dr. Wood as to the ineffectiveness of anti-syphilitic treatment. At one time he felt that he could influence the course of the disease by administering large doses of iodine, but he now inclines to the belief that that was an error of observation, because it could not be confirmed. Stevenson gives a toxin in moderate doses, with continued mercurial medication, but the results are not convincing and many cases of damage to the optic nerve are recorded.

As regards recovery of cases of syphilitic iritis, he has never seen a case that did not recover entirely, except that synechiae are left. It occasionally affords a very interesting observation, showing that it can be prevented by specific treatment or is influenced markedly by specific treatment, to this effect that it occasionally occurs in patients who have been under moderately active treatment, and still the disease makes its appearance in one eye. If treatment is pushed and the disease occurs in the second eye, it runs a milder course, but he does not believe that it can be prevented entirely by specific treatment. He has noted that syphilitic iritis seems to be more obstinate in those cases where the cutaneous manifestation takes the form of the eruption of lichen.

Dr. Charles H. Beard confined his part of the discussion of intraocular syphilis to demonstrations of the appearance of specific choroiditis and choroidoretinitis.

Dr. George F. Suker said that a number of years ago he advocated the use of large doses of potassium iodide, even up to one thousand grains a day, but no one received the suggestion with favor: therefore, he was rather pleased at Dr. Braun's advocacy of large doses. He was also pleased to hear Dr. Wilder's classification of iritis. He has seen but few cases of multiple gummata of the iris; as a rule, they are single, and project from behind forward, crowding the iris and projecting through a rent in the iris. A papule, on the other hand, destroys the iris tissue as a whole. As to parenchymatous keratitis, he has pursued a line of treatment similar to that outlined by Dr. Wood—hygiene, feeding and toning up the patient's general condition rather than giving anti-specific. He has had most excellent results, although the opacity does not disappear entirely. There always remains some haziness and the disease is of longer duration. One case lasted seven years, but that was an exception.

With reference to the pigmentation in the iris, if one will observe the iris after an attack of syphilitic iritis which has been practically cured, he will find more absorption of the pigment than occurs in any other form of iritis, and the pigment is much finer than in any other form. This is a very characteristic sign. He agreed with Dr. Wilder that the majority of cases of syphilitic iritis are complicated by more or less involvement of the anterior portion of the choroid. An examination of the anterior portion of the fundus will disclose evidence of such involvement. Contrary to the usual opinion, Dr. Suker does not believe in giving potassium iodide or mercury early in the attack during the acute stage. It is adding insult to injury, the tissues being already loaded down with discharge, and should not be subjected to any further glandular stimulation.

Dr. O. Tydings agreed with all Dr. Baum said with regard to the treatment by large doses of mercury and iodides, but the question is: Is the lesion a specific one or not? If it is specific, antisppecific treatment is indicated, but it must be remembered that some of these cases will get well after years of treatment. He recently dismissed a case of interstitial keratitis in a young man, twenty-four years of age, who had been under treatment for seven years. The Wasserman test and finding the spirochete are great aids in diagnosis.

As to the matter of inheritance, the question arises whether

it comes from the male or from the female. The female may pass through life without any external evidence of specific disease, and yet the offspring is syphilitic. If the disease is propagated by the male, how is it propagated? Is the spermatozoön capable of carrying the spirochete?

Dr. F. G. Harris said that the probabilities are that the mother is infected with syphilis and herself infects the ovule, which has been shown to contain the spirochete. Even such a woman presents no external evidence of syphilis, the Wasserman test is positive, and her offspring is syphilitic. Why the mother is free from symptoms and signs has not been explained. A typhoid may recover from the disease and carry organisms around in the body for the remainder of his life without showing any pathologic change. The same thing may be true of the mother infected with syphilis.

As to potassium iodide, it has been shown that the potassium iodide treatment in syphilis is purely symptomatic and that the more modern treatment is etiologic. The iritis is due to the spirochete. It has been found in the lesions of the eye, heart, cerebrum and elsewhere, showing that it is the etiologic cause of syphilis. It is true that the iodide will remove the products of inflammation, but it does not cure the syphilis; therefore, a recurring iritis means that the disease is still active. Mercury and arsenic are the only drugs that annihilate the spirochete; therefore, mercury is indicated whenever a diagnosis of syphilis is made, no matter in what stage. Mercury cures the disease.

Dr. L. Wallace Dean said that for three years he has not been giving any systematic treatment for the hereditary forms of interstitial keratitis, but in the acquired syphilis he has not been able to get any results except by pushing systemic treatment.

Dr. Julius Grinker said that it was found many years ago that in the tertiary lesions of the brain, iodides very often failed unless vigorous mercurial treatment was instituted. That knowledge was empirical, but now we know that such treatment really was good scientific practice, using mercury for the advanced lesions and the early ones, and later on using the iodides. In the secondary stage of syphilis mercury is indicated, but the tertiary lesions must be treated by iodides.

Dr. B. C. Corbus believes that there is no test superior to the Wasserman test, although, as in the case of every new discovery, imitations soon appear. The Wasserman test is positive for syphilis.

but also gives a reaction in frambesia, yaws and even in scarlet fever. We now use an alcoholic extract, and one syphilitic liver will produce about a quart of antigen, and remain stable for two or three years. Dr. Corbus has also used the guinea-pig heart with fair success. In one case of supposed congenital syphilis of the eye the test was made with the heart antigen from the guinea-pig and with liver antigen. The former gave a negative result, while the latter gave a positive result. It was concluded that the syphilitic antibody was so fine that the heart antigen could not detect it, whereas the liver antigen, being more powerful, gave a positive reaction.

Dr. Casey A. Wood said that he spoke more particularly of the anti-syphilitic treatment of interstitial keratitis, and that he is very much in favor of the general anti-syphilitic treatment in the great majority of other syphilitic diseases of the eye. He asked Dr. Baum as to the value of intravenous injections of mercurials and whether the course pursued by Darier and others who used limited amounts of antitoxin is entirely safe. Darier believes that one-half the ordinary dosage of atoxyl given for a great length of time is safe, so far as the eye is concerned, and that all cases of disturbance have occurred with a larger dose.

Dr. Wilder said that his experience is in accord with the experience of others in regard to the graver prognostic import of syphilitic iritis, as compared with the simple forms of iritis, but that does not mean that many of the cases of syphilitic iritis do not recover fully.

As to the large doses of iodide of potassium, he believes in their efficacy, particularly when nervous structures are involved. There is no dosage of potassium iodide; it depends on circumstances. He has seen nuclear palsies of the eye disappear, but not until after he had reached heroic doses. One case of palsy of the external rectus did not yield to treatment until the patient was taking 600 grains of potassium iodide three times a day.

As to the quality of potassium iodide used, he wanted Dr. Baum to say whether certain makes of potassium iodide are better than others. He has been informed that Merck markets four grades of potassium iodide, running in value up to the highest purity. In sensitive persons there is always some gastric disturbance in spite of the fact that iodide is given with certain pepsin preparations, but since using the Merck iodide of highest purity, he has not noted this disturbance.

Dr. William L. Baum answered Dr. Wood's question by stating that small doses of atoxyl have not given better results than moderate doses of mercury. Intravenous injections of mercury were popular years ago, but are no longer considered good practice. The results are not strikingly better than from hypodermic medication, and the danger of clot formation, which he does not believe to be very great, might become so in the hands of those who are not skilled in the technic of the injection.

As regards the different grades of potassium iodide, he said that there has crept into use, for financial reasons, the employment of iodides which are not strictly pure, therefore, it was found necessary to market iodides of various grades. He advised using the best grade always and some manufacturers make better iodides than others, but owing to the fact that the profession has been discouraged from specifying certain mixed preparations, he hesitated to speak about this point. He also advised giving pepsin preparations and called particular attention to the necessity of proper dilution, because saturated solution of potassium iodide produced congestion of mucous membranes. Therefore, large doses well diluted can be used with safety. That is also the reason for giving iodides after meals or when food is present in the stomach. In case of intestinal congestion, it is advisable to give lactopeptin instead of pepsin. One point we must not lose sight of is the fact that syphilis must be treated by mercury for a minimum period of three years, and for every year of the patient's life thereafter. He is convinced that the time will come that the Wasserman test or some modification of it may be employed by every physician, and we can then say when the time has arrived that the patient is no longer in need of anti-specific treatment. When the test is positive, treatment must again be instituted. That will also determine the amount and specific treatment necessary. There is another reason for lengthening the duration of treatment, and that is that every syphilitic has a tendency toward hardening of the vessels, and increasing the blood pressure. It is in these cases particularly that iodides are indicated; because they remove from the vessels certain elements which decrease their elasticity, and to a certain extent lower the blood pressure. He is firmly convinced that we add to the expectation of life of the syphilitic at least a period of from five to ten years, by pursuing such a course, but he must receive some sort of treatment as long as he lives.

WILLIS O. NANCE, Secretary.

WILLS HOSPITAL OPHTHALMIC SOCIETY.

Meeting Tuesday, May 4, 1909.

WILLIAM CAMPBELL POSEY, M. D., Chairman.

Iritis.

Dr. Posey read the "Report of an Unusually Intractable Case of Iritis, with Some Remarks on the Etiology of Iritis." The patient, a man in middle life, had suffered from muscular rheumatism since childhood, but in 1892 some of the joints became affected, six months after an attack of urethral gonorrhea. A gleet discharge persisted for several months after the inauguration of the urethritis and the inflammation in the joints was severe for a time. Both subsided under careful treatment; the patient upon the whole enjoying good health since. Repeated attacks of irido-cyclitis occurred in both eyes, however, since 1898, the inflammation being of the serous type, running a protracted course and not amenable to treatment, which consisted of the various local and general means, anti-gonococcic serum being not employed. Notwithstanding the repeated attacks of inflammation, however, vision is still normal in both eyes, though there are some posterior synechia with capsular changes in both lenses. Dr. Posey attributed the iritis to gonorrheal rheumatism and pointed out that gonorrheal iritis has been recognized as a definite form of ocular disease since Brodie described it in 1834. He pointed out, as Higgins has well said, that the probability is that in many men who have had gonorrhea frequently there is left for any number of years in some part of the urino-genital apparatus a very much attenuated virus, which gives no trouble locally, but from time to time becomes more active, and though still setting up no local irritation, is capable of causing inflammation in synovial membranes or in the iris. In fact, it looks almost as if the iris becomes on occasion an excretory organ and tries to eliminate the poison, receiving considerable damage to itself in the attempt.

Dr. Posey pointed out that both gonorrheal arthritis and gonorrheal iritis have certain points in common. Both are prone to relapses and leave behind them an apparent vulnerability of tissues, which may persist for years. There must, however, be a personal dyscrasia in those who suffer, as the proportion of persons who have arthritis and iritis to those who have had gonorrhea is very small. He called attention to the observations of John Griffiths that ocular inflammation was not only liable to be a complication

of gonorrhea but also a sequel, as Griffiths had noted that the ocular manifestation of constitutional gonorrhea may appear many years after the complete disappearance of the initial local inflammation.

In speaking of gout as an etiological factor, Dr. Posey stated that while in his experience gout may give rise to iritis, a gonorrheal element is often present in a large number of rheumatic cases, and where this is the case, it assumes a very virulent type. It should be remembered, however, that those with a gouty constitution are more apt than others to suffer from gonorrheal iritis, as it is an established fact that sufferers from iritis and gonorrheal arthritis are frequently the descendants of those who were gouty. Dr. Posey pointed out that he had treated a number of most intractable cases of iritis in advanced stages of rheumatoid arthritis, which was contrary to the experience of Beaumont, of Bath, England, who has suggested that iritis is a symptom of the earlier stages of gout.

Doctor Zentmayer, in reviewing "Krückmann's Observations Concerning Iritis," stated that Krückmann divides Iritis into two classes. In the first class the manifestations are in the anterior surface of the iris, and the distinctive features are: a tendency to moderate dilatation of the pupil in the beginning, the presence of a disseminated deposit of fibrin in the form of lichen-like lines on the anterior surface and a moderate ciliary injection, frequently a mild conjunctivitis with serous or mucus discharge. If synechia form, they are of the pigment layer of the iris and not tissue synechia. A fine precipitate and correspondingly situated fine corneal opacities, principally in the posterior layers of the cornea are frequently seen. The principal cause being rheumatism, the persons affected are the so-called "weather prophets."

The second cause of superficial inflammation of the iris is gonorrhea. It is probably always metastatic. It practically never takes on a purulent form. It is usually associated with arthritis. It is distinguished by early exudate of fibrin into the anterior chamber.

The third cause is gout. The history is a help in differential diagnosis, although chemosis and congestion out of proportion to the changes in the iris is a distinguishing feature.

In the second class, the manifestations are in the deeper layers and there is a tendency to the formation of nodules.

The lesions correspond closely to those of the skin and mucous

membranes. The early exanthemata manifest themselves but are seldom seen by the ophthalmologist. The roseola or macular syphilitide manifests itself as radiating and clustered injections, principally at the minor circle. The most characteristic feature in the fibrinous iritis of syphilis is the presence of marked edemas of the iris tissue in the sphincter circle. The superficial deposit of fibrin is absent and there is an early tendency to the formation of tissue synechia. Krückmann further discusses the incidence of the early superficial and deep papules; later, papules and group formations, and brings out many interesting points in the resemblance of the iritic to the dermal lesions.

Drs. Charles Jennings and Emory Hill, the resident surgeons, detailed their analysis of "The Etiologic Factors in Iritis, Compiled from the Records of 500 Cases Treated at the Hospital."

In their series, while numerous systemic disorders and acute infections were responsible for a number of the other cases, syphilis, rheumatism and gonorrhœa were the predominant etiologic factors and taken together caused 92.2 per cent of the cases.

The majority of the cases of syphilis occurred between the ages of 20 and 50. One hundred and thirty-six cases gave a history of chancre; 90 of secondary lesions; 3 of tertiaries, either accompanying or preceding the iritis. Thirty-four cases showed syphilitic growths on the iris. The iritis was found to be generally a secondary manifestation, as shown by the following facts: iritis followed within one year of chancre in 52 cases, was coincident with secondaries on the body in 56; syphilitic nodules on the iris were coincident with secondaries on the body or followed within eight months of chancre, in 21 out of 34 cases. These growths were regarded as papulosa or condylomata rather than true gummata. Complications occurred as follows: Descementitis, keratitis, hypopyon, vitreous opacities, optic atrophy, neuro-retinitis and staphyloma of the sclera.

The age of the patient seemed to be unimportant in rheumatic cases. Ten cases gave a history of muscular rheumatism, 55 of articular rheumatism, generally involving the larger joints.

Every case of gonorrhœa occurred in males, ten had had articular rheumatism, generally involving the larger joints. Urethritis was coincident with the iritis in three cases; preceding the iritis by from one to twelve months in six cases; the longest interval between the urethritis and the iritis was 18 years.

There were 14 recurrences in 26 gonorrheal cases and 70 recurrences in 128 rheumatic cases, as opposed to only 46 recurrences in 307 syphilitic cases.

Out of 6 cases of tuberculosis, keratitis occurred in 5. Three cases were diagnosed positively after subcutaneous injections of tuberculin. Four cases had tubercular lesions elsewhere in the body, and in these both eyes were involved. The six cases were between 13 and 30 years of age.

Three cases occurred in women who were nursing infants under 3 months of age. A history of syphilis could not be elicited. As auto intoxication is responsible for many general diseases and eye diseases in pregnant and puerperal women, it is well to consider it as a possible cause of iritis.

An exceedingly rare condition is represented by one case of prenatal iritis in which active buphthalmos was found shortly after birth. This condition has been said to be one of the stigmata of inherited syphilis.

Gout and diabetes each caused one case of iritis. Gout is very rare in this country, but diabetes is by no means uncommon. If, as claimed by Hutchinson, nearly all cases of diabetic iritis occur in gouty individuals, the rarity of gout would account for the rarity of both gouty and diabetic iritis in our clinics.

Dr. Posey praised the resident surgeons for their admirable report upon which they had put much labor. Of particular interest to him were the clear analyses of the statistics which Dr. Jennings and Dr. Hill had so ably presented.

Dr. George W. Norris in discussing "The nature of certain infectious processes which may give rise to or are complicated by iritis," briefly reviewed the recent discoveries in the etiology of syphilis as well as the improved and more certain methods of diagnosis in that disease. He emphasized the fact that notwithstanding these great advances so far the treatment of the disease remains unchanged.

He then considered the subject of rheumatism, acute and chronic, marked by pain in various regions, of the association with the "gouty diathesis" and of the likelihood of disorders of metabolism being the cause of this vague and misnamed affection. In these cases iritis occurs not infrequently, and is subject to relapses and recurrences. In true rheumatic fever, however, iritis is rarely found. Many cases of arthritic disorders are truly autointoxic in

origin and the ocular diseases accompanying them are equally so.

Gonorrheal rheumatism is not a specific entity, it is a metastatic process, comparable to like conditions found in other acute infections. Iritis is common, and many cases of obscure origin have been caused by a sudden reviving of the infection which has laid dormant in the system, may be even for years.

After reviewing the many ideas advanced as to the cause of gout, Norris believes that the problem is still unsolved, and he places great confidence in the idea that it is really an expression of disarranged metabolism aggravated by an unbalanced nervous mechanism, chiefly in a part already weakened by antecedent lesions more or less extensive, as after a fracture or bruises.

While uric acid is not found in the blood in health it is nevertheless not a poison, and the presence of crystals in the urine does not of itself alone indicate anything portentous. In gouty individuals metabolic processes are unstable and may express themselves in outbursts in the nervous, the gastrointestinal, or the circulatory systems, etc. Our treatment is valuable only as we are sure which of these systems is affected. The most efficient treatment is that form which considers the diet, the amount of exercise and rest to be indulged in, and the out of door life the person is able to endure. Each individual is a law unto himself.

Dr. S. Lewis Ziegler said that it is difficult to ascribe exactly to what inflammation the iris may be due, for it can be caused by bacterial organisms, or toxines, or irritants circulating in the blood. He believes that any force that interferes with oxidation, as by nasal obstruction, may give rise to iritis. And disease in the accessory sinuses may be transferred to the tissues of the globe; many cases of recurrent iritis are doubtless maintained by such a connection. Certainly these cases can be greatly benefited through the reduction of the lymphostasis effected by galvanism.

Dr. Zentmayer said in this discussion he was reminded of the important observation recently uttered by Goldthwait that suppurative emboli can be carried from diseased faucial or sinus foci and set up inflammation in distant parts.

He therefore urged the importance of carefulness in our study to establish with certainty the clinical difference between rheumatism and syphilitic iritis. Krückman's methods have cleared the subject of diagnosis most satisfactorily.

Dr. Posey said that he, too, had reviewed Goldthwait's ob-

servations, and in his own experience he had searched in the sinuses for diseases of those structures, yet he had found only one case in which there was a clear association. There were no signs of rheumatism in it, but there was ethmoiditis.

It is doubtless true that gonorrheal infection may remain latent for a variable period and then become manifest as an iritis. Hill Griffith has reported cases showing long intervals, one even so long as twenty-one years, yet the sequences were not entirely satisfactory, and Posey believed that there must have been intercurrent infection in the periods.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Meeting of Thursday, May 6, 1909, in London.

MR. R. MARCUS GUNN, F. R. C. S., President, in the Chair.

Major R. H. Elliott, L. M. S., exhibited instruments: (a) an evisceration spoon; (b) an optic nerve hook for use in the operation of optico-ciliary neurectomy; (c) an elevator for use in extirpation of the lachrymal sac.

Mr. Sydney Stephenson showed a case of congenital anterior staphyloma in a baby, who also had absence of patellæ, genu recurvatum, cryptorchidism, and other abnormalities.

Mr. G. Winfield Roll showed a case with unusual appearance of the optic disc, the result of a previous papillitis.

Mr. E. Treacher Collins showed a case of nodular leprosy affecting the eyes; also a case of progressive bilateral ptosis. Mr. Holmes Spicer expressed the opinion that the condition was congenital, and thought the ptosis was closely allied to that in the cases of myasthenia gravis which had been described.

Tubercle of the Choroid.

Dr. G. Carpenter read a paper entitled "A Clinical Contribution to the Study of Tubercle of the Choroid." The first patient, under Dr. Porter Parkinson, was 7 years of age, and had been getting thinner. Was admitted to hospital with physical signs at the right apex, front and back. There was a history of abdominal pain, but no cause for it could be discovered by palpation. The child then became drowsy and comatose, with great wasting. There were six choroidal tubercles, and flecks of retinal pigment were scattered about them. Three of the tubercles were crossed by

retinal vessels. A girl 2 years of age had been ailing six weeks, and had had sickness and headache five days. When admitted, she was suffering from meningitis, and died on the eighth day. The right fundus was normal, and no tubercles or optic neuritis could be seen, but on the left side there was slight papillitis. Close to the optic papilla was a tubercle of considerable size, and several blood vessels crossed its face. The retinal arteries were small, nothing was noticed about the veins. The surface vessels of the brain were congested. The diagnosis was verified at the autopsy. The next case was a boy, aet. 17 months, who had much the same physical signs. He had meningitis, which was later corroborated by lumbar puncture.

Another case was that of a boy, aet. 2 years, who had had a bad cough five weeks, and when admitted had consolidation at both apices. There was a small amount of papillitis in both eyes. He died twelve days after admission, no changes having occurred in the fundus in the meantime. Several other cases of the kind were recorded, and the author then proceeded to discuss the readiness which had been shown to attribute such appearances to syphilis, whatever evidence to the contrary might have existed. He urged early and systematic ophthalmological examination, which would often render unnecessary spinal punctures, or injections of substances to induce reactions.

DISCUSSION.

The paper was discussed by the president and by Dr. Frederick E. Batten, the latter gentleman commenting on the comparative infrequency of tubercle of the choroid in tuberculous children, and stating that he was under the impression that spinal puncture afforded a more certain indication than ophthalmoscopic observation. Dr. Carpenter replied.

Spring Catarrh Treated by Radium.

Messrs. McKenzie Davidson and Arnold Lawson read a paper entitled "A Case of Spring Catarrh Treated and Cured by Radium." The patient was a boy, aet. 12, who suffered from chronic photophobia, lachrymation, and slight conjunctival discharge, which had persisted for nearly a year, but no exciting cause could be discovered. Both tarsi were covered with dense hard excrescences, closely aggregated, and separated by deep narrow fissures. The retro-tarsal tissue was swollen and hypertrophied, and the viscid discharge was spread over the conjunctival surface. The disease was

confirmed by examination of the discharge. The irritability was chiefly marked in the morning. He was ordered complete cessation from close work, and dark glasses for out of doors. Yellow mercuric oxide was used, but no benefit resulted, and it caused too much pain. A week later he had cupric sulphate drops, of a strength of one grain to the ounce. In August the boy went to the seaside against his (Dr. Lawson's) advice, and got worse there. Bicarbonate of soda and hydrocyanic acid gave relief, and weak copper sulphate drops were used from time to time still. He then consulted with Mr. McKenzie Davidson as to the possibility of treating the case with radium. It was carried out for a year, during which period each eye was treated eight times. No pain or other immediate effect was produced, but the granulations gradually subsided. After the eighth application he was quite cured, but the interval before reading the communication was to make quite sure there had been no recurrence for a good time. Thirty-nine milligrammes of radium were used for 15 minutes at first, and then forty-four milligrammes. Mr. Lawson thought few applications with a potent dose of radium was better than many applications with a weaker quantity. Mr. McKenzie Davidson discussed the case, pointing out the importance of being sure the strength of radium was what it was said to be, as he had found serious discrepancies. It was also very important to cut off those radium emanations which were not needed in the cure.

Abuse of Atropin in Refraction.

Mr. R. R. Cruise read a paper on "The Abuse of Atropin in Refraction Work." The paper was based on the examination of 140 eyes in patients under 16 years of age. He concluded that, on the whole, homatropine and cocaine were quite equal, if not superior, to atropine, though in most cases the result after the two mydriatics was identical.

DISCUSSION.

The paper was discussed by Mr. Stephenson, Mr. Bishop Harman and Mr. Devereux Marshall, the latter of whom alluded to Mr. Lang's investigations on the matter; and Mr. Ernest Clarke said it would have been useful to learn what the astigmatism was in the cases.

Mr. Mayou read a communication on the disappearance of the iris from the pupillary area, following injury.

C. DEVEREUX MARSHALL, F. R. C. S.

Notes and News

Josef Imre has been appointed professor of ophthalmology in Klausenburg.

THE RECORD will pay fifty cents for the January, 1905. OPTHALMIC RECORD.

Dr. J. Ewetzky, professor of ophthalmology on the Medical Faculty at Dorpat, is dead.

Dr. M. H. Garten, a prominent ophthalmologist of Lincoln, Neb., died recently in that city.

Dr. and Mrs. O. A. Griffin, of Ann Arbor, Mich., left for a tour of the European clinics on June 19.

Dr. Charles H. Francis has been elected assistant-professor of ophthalmology at the Chicago Policlinic.

Dr. Willis O. Nance has been appointed oculist to the Chicago, Burlington and Quincy Railroad at Chicago.

Prof. D. Wilhelm Von Zehender celebrated his 90th birthday in Rostock on May 21st. Prof. Zehender was the founder of the *Klinische Monatsblätter für Augenheilkunde*.

Drs. E. V. L. Brown, Willis O. Nance and W. L. Noble were appointed a committee on ophthalmia neonatorum by the president of the Illinois State Medical Society at the recent annual meeting at Quincy.

The Missouri Legislature refused to consider the optometry bill after the committee had heard the reasons given by physicians and by Mr. Haggrenow, a St. Louis druggist and a member of the committee.

Dr. T. Alexander Barber has been elected professor of diseases of the eye, ear, nose and throat at the Mississippi Medical College at Meridian, Miss.; Dr. Charles P. Mosley was elected adjunct professor in the same department.

Dr. W. H. Snyder, of Toledo, Ohio, was elected president of the Ohio State Medical Society, at the recent meeting in Cincinnati. Among those who read papers before this Society were Drs. Frank Allport and Joseph Beck, of Chicago.

The proposal to remove the School for Deaf, Dumb and Blind from Boise, Idaho, has met with much opposition from physicians, who contend that such children should be located where they can have the best care and become accustomed to the city traffic for their protection.

Eye Examination in Children.—K. H. Goldstone advises examination of the eye fundus in any child who after the fifth month fails to hold up its head, who does not grasp objects, and in whom hyperacusis is present. He believes that amaurotic family idiocy is not so rare as was formerly thought.—*Jour. Med. Soc. of New Jersey*, February.

The Chicago Eye, Ear, Nose and Throat College has completed the new annex, 204 East Washington Street, adjacent to the hospital, 206 East Washington Street. This annex doubles the capacity of this progressive institution.

A House physician is appointed in June and December, time of service one year.

NEW BOOKS.

An Index of Ophthalmic original articles published in the *Correspondenzblatt für Schweizer Aerzte*. Compiled by Dr. Alfred Dutoit, Burgdorf. First volume covers the years from 1871 to 1908, published by Benno Schwabe & Co., Basel, 1909. Price, 60 cents.

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

VOL. XVIII CHICAGO, SEPTEMBER, 1909 No. 9, NEW SERIES

CONGENITAL ABSENCE OF ABDUCTION AND ADDUC- TION; VOLUNTARY RECESSION OF THE GLOBE WITH SIMULTANEOUS CONTRACTION OF THE LID FISSURE.

ALFRED MURRAY, M. D.,

CHICAGO.

The first example of this rare condition is recorded by Heuck (1) in 1879. From this time on until 1900 when J. Wolff (2) gave the first really complete account of the anomaly together with a collection of the literature, only seven cases were noted. To this number Wolff added five of his own. Following the work of Wolff and also that of Axenfeld and Shürenberg (3) who gave considerable insight into the pathology of the condition, J. J. Evans (4) gave a resume of twenty-seven cases, including two of his own.

The latest and most complete collection of the literature and citation of personal cases, however, is that of Alexander Duane (5) of New York. Including his own there were at that time recorded in all but 54 cases. The article of Duane is very exhaustive both as to the literature and description of cases. He styles the condition as "congenital deficiency of abduction, associated with impairment of adduction, retraction movements, contraction of palpebral fissure and oblique movements of the eye," takes up the objective symptoms, and presents the various explanations for the phenomenon. For those to whom this excellent article of Duane's is inaccessible, a superficial resumé of his findings and deductions might be of service.

Under the heading of objective symptoms there are brought out the following points based upon the series of 54 cases.

Abduction is usually altogether absent.

Adduction is usually normal but difficult to maintain. The eye, as a rule, moves up and in, and recedes upon attempted adduction.

Recession was present in two cases where the power of adduction was wanting.

The *lid fissure* closes at the same time the globe recedes.

Protraction upon attempted abduction was occasionally present.

Convergence is usually undisturbed. In fact the eye in its primary position has a slight tendency to converge.

Passive movements of the eyeball are usually restricted.

The *head* is as a rule inclined to one side.

The *left eye* is usually affected, although bilateral cases have been observed, and the female sex seems more predisposed to the anomaly than the male.

The *pupils* are apparently not affected.

As to the subjective symptoms. The vision is quite variable. The cases are usually hypermetropic, although frequently the affected eye is amblyopic. Diplopia is occasionally present, and is usually to be elicited. Vertigo is rare.

In explanation of the condition Duane entirely excludes any possibility of its being of nuclear origin. Absence of abduction is accounted for by absence of the external rectus or its replacement by a connective tissue cord. Restriction of adduction is supposed to be due to the opposition of the external rectus or to abnormal insertion of the internal rectus. Several theories have been advanced regarding the phenomenon of retraction of the globe, viz: abnormal insertion of the internus, a secondary slip, inextensibility of the external rectus, adducting action of the superior and inferior recti. The cause is not always the same owing to the variety of anatomical conditions, and where very marked is probably due to a combination of causes. As to the oblique movements, these are probably due to spasmodic contraction of the obliques. The cause of the contraction of the palpebral fissure still remains a matter of some speculation. Duane accepts as probable the explanation of Parker that it is "some peculiar associated movement produced by synergic action of the facial and third nerve."

Operation is not advised except in cases of pronounced inward squint.

The following personal case does not differ materially from the majority of those already described except in one or two points, viz: in absence of convergence, which is decidedly the exception, and in the presence of an additional anomaly, namely, unilateral lachrymation. No tears are secreted by the affected eye during the act of crying. It is not altogether impossible that the lachrymal gland on the corresponding side is congenitally absent or at least so imperfectly developed as to secrete only a minimum amount of tears. The eye itself is normally moist. There is no parasthesia or other manifestation of neurotic nature to account for the absence of accessory lachrymation.

Personal case: Carl F., male, 8 years old. Born of Swedish parents, fifth of six births. Parents and all other children sound eyes. Labor most difficult of all, but not instrumental. No history of injury. General health O. K. No headache or other symptoms. No diplopia, in primary position, although elicited with red glass by altering position of head. Inclined to hold head to left side. Condition affects right eye contrary to ordinary involvement. No tears from right eye when crying. Eye perfectly normal in appearance. In primary position eye slightly abducted and retracted, while palpebral fissure somewhat narrower than its fellow. No nystagmus. Pupils normal. Fundi O. K. Patient illiterate, but accepts following correction:

$L. + 1.00 \text{ sph.} = 20/20 + 1.00 \text{ cyl. ax. } 90^\circ = 20/50.$

Marked secondary outward deviation of sound eye under cover. No power of abduction in affected eye, also no protraction. Adduction also practically absent. Upon directing patient to look to left right eyeball retracts and cornea appears to move up and slightly in. No torsion. Lid fissure contracts decidedly when the eye recedes.

1. Klin. Monatsbl. f. Augenheilkunde, p. 253, 1879.
2. Archives of Oph., Vol. XXIX, No. 3, 1900.
3. Klin. Monatsbl. f. Augenheilkunde, January and November, 1901.
4. Ophthalmic Review, 1903.
5. Archives of Oph., Vol. XXXIV, No. 2, 1905.

A MODIFICATION OF THE USUAL METHOD OF DIVID-
ING STRICTURES OF THE CANALICULI AND LACH-
RYMAL DUCTS: MODIFICATION OF DR.
AGNEW'S CANALICULUS KNIFE.

BY HENRY W. WANDLESS, M. D.

NEW YORK.

Dr. Agnew's knife is modified by making the blade shorter and narrower, as is shown in cut below. The shank is of flexible metal, so that it may be easily adapted to any case. George Tiemann & Co., New York, are the makers.

The objects sought in this modified procedure are summed up briefly: to avoid permanently, destroying nature's tear-filter; to avoid the deformity caused by cutting through the lower portion of



the internal angle of the eye, thus permitting the lower lid to drop away from its normal position; to avoid the unnecessary slitting of the lachrymal duct and of the canaliculus.

Antiseptic precautions are necessary before the knife is introduced. The shank is curved so that the cutting edge is on the convexity instead of the concavity as is usual. It is then introduced in the ordinary way, except that after the punctum is entered and the handle is lowered to the horizontal, the cutting edge is directed down and away from the margin of the lid. It is now advanced toward the sac, and at the same time lifted up pressing hard against the covering of the canaliculus, which latter is flattened vertically, thus minimizing the depth of the cut through its floor. When the probe point of the knife is felt to impinge against the nasal bone, the handle is elevated to the perpendicular, but before it is rotated on its long axis, it is made to descend into the sac. It is then rotated, carrying the cutting edge to the posterior. In this position the knife is pushed firmly and gently through the lachrymal duct.

To withdraw the knife, it is necessary to retrace the steps described in its introduction exactly.

The blade of this knife is made short in order that it may pass entirely into the sac, where it will do the least injury to the surrounding parts, and narrow because I have never found any advantage in a broad one. On the contrary, much damage is often the result of its use. This operation is regarded as very simple and

easy to perform, being one of the first operations on the eye that the beginner is permitted to do; when, in fact, it is not simple, considerable judgment and skill being required, especially when inflammatory conditions are present.

The frequency with which it is deemed necessary to remove the lachrymal sac, and the lachrymal gland in part or in whole, and the many cases of chronic dacryocystitis operated upon unsuccessfully, are to my mind pretty good evidences that we have not done all that might be done conservatively, or else something is wrong with either our method or technic, or perhaps both.

It must be confessed, although not altogether to our credit, that we have not attained the same degree of success in the treatment of lachrymal diseases as have the urologists in the treatment of the diseases of the urinary passages, which latter are much more difficult to treat. This, I am satisfied, is due to the fact that the ophthalmologist is less impressed with the importance of his case. The urologist takes a more serious view of his cases, and very properly so, because it often occurs that life is at stake. Very rarely, if ever, is this true of lachrymal diseases. The ophthalmologist knows that he always has a "last resort," which usually brings relief to his patient, and too often he is inclined to use this "last resort" very early in the treatment, before he has made sufficient effort to cure the case by other less radical means.

I do not believe that removal of the lachrymal gland in whole or in part, except for malignancy, is justifiable at any time, nor the lachrymal sac, except in the most extreme conditions. In fact, it is the duty of the physician to preserve every part of the human organism whose function serves a useful purpose in the physical economy, unless, as stated before, the urgency of the case demands the sacrifice.

It has been the custom to use a knife with a broad blade, followed by as large a probe as it was possible to pass. This is an error. The large probe often passes entirely outside the duct, thus forming a new canal which becomes lined with granulating, or at best cicatricial tissue, closing up as soon as probing is discontinued; or if a style has been worn it must be used indefinitely. A knife making an opening only large enough to admit a No. 6 or 8 Bowman is much to be preferred. In the case of a narrow knife being used, the strictures only are cut through and the probe follows the duct throughout its course. Then with careful and persistent use of a medium-sized probe (No. 10 or 12 Theobald) and

with due regard for antiseptics, a cure may be expected with reasonable certainty. It is a mistake to use a large probe after the strictures have been fully dilated. I formerly held the contrary view, but even then was very conservative. The upper canaliculus may be selected as most convenient for operation on the duct, modifying the technic accordingly. Should the punctum remain too large, it may be reduced by a properly placed stitch, a small probe being used as a guide and passed every day or so until healing is complete.

In the Journal of the American Medical Association, February 1st, 1896, I made the following observations in a plea for conservative treatment by the persistent use of probes: "I open up the duct with a knife, and follow this with a probe as large as, in my opinion, is justified. Beginning on the second or third day, I inaugurate a series of probings every second or third day at first, gradually increasing the interval between probings from two to sixty days, which is kept up for some time after I consider the case well. When the obstruction is incomplete, I seldom use the knife to open up the entire duct, beginning at once with the smaller probes, sometimes increasing two or three sizes at one sitting. The cause in every case should be sought, and if possible, removed."

"Dr. Casey A. Wood, professor of ophthalmology in the Post-Graduate Medical School of Chicago, in commenting on the foregoing, said: "If Dr. Wandless' program could be carried out in all cases a cure would doubtless result, because if there is one thing that it is established in these cases, it is the necessity of faithfully using as large a probe as possible for months, and even for years at a time. Cutting through the stricture, combined with the irregular or occasional use of a small probe, not only accomplishes nothing, but makes the latter state of the patient worse than the first, and discourages him from undergoing further treatment. He wanders over the country, deriding ophthalmology in general, and his late oculist in particular."

9 EAST THIRTY-NINTH STREET.

SOME EXPERIMENTS WITH MR. SUTCLIFFE'S KERATOMETER.

BY GEORGE YOUNG, M. D., M. R. C. S., L. R. C. P.
NEW YORK.

Granted the obvious merits of Mr. Javal's invention and the great clinical value of that instrument, we yet have to admit that an exact mathematical method of measuring the actual pathological astigmatism of any eye remains a problem to be solved, if such a solution be possible. No one would prescribe a cylinder merely on the ophthalmometric reading, and in order to determine the absolute astigmatism, we are obliged to resort to further tests, objective and subjective. The reason of this is no doubt the existence of a physiological astigmatism, producing neither ametropia or asthenopia, which, however, is not a constant factor, unfortunately, but one varying within pretty wide limits. Reference to Steigor¹ and Mende² shows this physiological error of the cornea to range between 0.5 and 1.0 D. or even between 0.25 and 1.25 D. That such errors produce no astigmatism and are consistent with $V=1$ and better, with rejection of all cylinders can only be accounted for by compensating irregularities in the media further back. Had we the means of estimating these, which I venture to say may be not only in the posterior surface of the cornea, anterior and posterior surfaces of the lens and the conformation of the fossa patellaris, but possibly also in the recipient portions of the fundus, we could estimate how much of the astigmatism remains uncompensated and requires correction, in order to place the dioptric system on a spherical basis.

Such a problem seems fraught with insurmountable difficulties. Until such a marvelous invention be forthcoming, it remains for the conscientious ophthalmologist to be most careful in ophthalmometry, but pedantic only in estimating the exact axis; to be master of retinoscopy, disciple in direct estimation with the ophthalmoscope, and a fair but critical judge of the subjective method, which we may not yet treat with contempt. Though objective clinical methods are the aim of all scientific investigation, we must not lose sight of the difference between ideals and realization.

Granted, therefore, there be scope for improvement and advance in the science of ophthalmometry, it behooves us to take notice

¹ Beiträge z. Phys. und Path. d. Hornhautrefraktion. Wiesbaden, Verl. v. J. F. Bergmann.

² Inaugural Dissertation, Bern, 1906, p. 18, 4 Gruppe.

of every attempt made at such improvement and to test it as to its merits. We cannot all test everything, but as it has fallen to my lot to investigate an instrument of Mr. Sutcliffe, placed at my disposal by E. B. Meyrowitz of this city, I mean these remarks to be a guide to any who may be asking the question, "What are the advantages of the instrument?" I will mention them here in the order of their merit, appending a tabulated series of the cases examined, the latter, however, being only an extract of a careful and detailed record made. In my original list are noted all the details of each case, and I merely give here the quintessence of the tests which were conducted as follows: Name, age, sex, reference, mydriatic being noted, the test was begun with Sutcliffe's keratometer, carefully recorded, followed by the test with Javal, then by retinoscopy, the direct method and finally controlled by the test types. Results were then compared and the difference in dioptré and the axis noted. They average in my list of cases 0.25 D. and 2.05°. The results, therefore, allowing for personal equation, are practically equal. All the cases examined are given below, no preference or omission was made.

What, then, are the advantages of this instrument, new in principle, and therefore a new invention?

The problem of reading both curvatures of the cornea in one position, without the necessity of rotating or in any way moving any part of the instrument seen by the patient, is solved.

The instrument I used was just as accurate as Javal.

The technique is easier and shorter, being reduced to three movements in all cases, i. e., centering, focussing, adjusting. The result is then registered on scales.

This self-registering does away with counting of steps and fractions.

An accurate focus is more easily obtained. It shows three images of the mire. As soon as out of focus, five are instantly seen.

Only one mire is required and after the axis is once found that mire never moves again and cannot cause the patient to flinch.

In restless cases and unsteady eyes it is particularly useful, because it suffices to have seen the reflections properly adjusted for one instant. In that instant the result is registered on the scale, being moreover that of both diameters, i. e., the corneal astigmatism is recorded by the one correct adjustment.

It takes less time, particularly in astigmatism against the rule, and in these cases seems to come a little nearer the real amount.

I might mention that I have requested Mr. E. B. Meyrowitz of Twenty-third street to suggest certain improvements to Mr. Sutcliffe, which will make the adjustment of the images and finding of the axis easier if not more exact, and this has been done. The decision rests with the inventor.

In the following table, in the first two columns the plus cylinder is implied throughout:

	Sutcliffe	Javal	Accepted
O. D.	0.25 at 90	0.25 at 90	+.25 cyl. axis 90°
O. S.	0.50 at 90	0.50 at 90	+.25 " " "
D.	1.0 at 80	0.75 at 80	.50 " " "
S.	1. at 90	0.75 at 90	.50 " " "
D.	1.0 at 85	1.0 at 85	.50 " " "
S.	1.0 at 90	1.0 at 90	+.50 " " "
D.	0.50 at 90	0.75 at 90	None
S.	1.75 at 90	1.75 at 90	1.25 " " "
D.	1.25 at 90	1.5 at 90	+1.25 " " "
S.	1.5 at 90	1.5 at 90	1.0 " " "
D.	2.0 at 90	1.75 at 90	2.0 " " "
S.	1.25 at 90	1.25 at 90	1.50 " " "
D.	2.0 at 90	2.0 at 90	+2.50 " " "
S.	3.25 at 90	3.25 at 90	4.0 " " "
D.	4.25 at 90	4.75 at 100	+6.0 " " "
S.	0.25 at 90	0.50 at 95	None
D.	0.5 at 90	0.75 at 90	.25 " " 180
S.	0.0 at	0.25 at 90	None
D.	1 at 90	1 at 90	.50 " " "
S.	0.75 at 90	1.75 at 100	-.50 " " "
D.	1 at 95	1.25 at 95	-1.0 " " "
S.	1 at 95	0.75 at 85	-1.0 " " "
D.	0.12 at 90	0.50 at 90	.25 " " 90
S.	0.62 at 105	0.37 at 105	.25 " " 105
D.	0.75 at 110	0.75 at 110	+ .25 " " 110
S.	1.0 at 100	1.0 at 100	.25 " " 100
D.	0.75 at 90	1.0 at 90	.50 " " 75
S.	0.75 at 90	1.0 at 90	.25 " " 90
D.	1.50 at 90	1.50 at 95	1.25 " " 90
S.	3.50 at 100	3.25 at 105	3.50 " " 100
O. D.	3.0 at 60	3.0 at 60	+3.50 " " 60
O. S.	12.25 at 120	3.0 at 115	2.75 " " 120
D.	0.75 at 120	0.75 at 120	.50 " " 120
S.	0.50 at 90	0.75 at 90	.50 " " 90
D.	5.50 at 115	4.50 at 115	5.50 " " 105
S.	0.25 at 90	0.50 at 100	None
D.	5.50 at 105	4.50 at 115	5.50 " " 105
S.	0.50 at 90	0.50 at 100	None
D.	1.0 at 110	1.25 at 110	2.50 " " 30
S.	1.25 at 60	1.75 at 75	-2.75 " " 150
D.	3.0 at 100	3.0 at 100	3.50 " " 10
S.	3.25 at 85	3.25 at 85	3.50 " " 170
D.	3.75 at 110	3.75 at 110	-3.0 " " 20
S.	3.25 at 75	3.25 at 80	-2.50 " " 170
D.	0.25 at 90	0.25 at 90	+ .25 " " 180
S.	0.0	0.25 at 90	.25 " " 180
D.	0.0	0.0	.25 " " 180
S.	0.25 at 90	0.25 at 90	.25 " " 180
D.	0.50 at 180	0.0	+1.0 " " "
S.	amblyopic		
D.	0.50 at 180	0.25 at 180	1.25 " " "
S.	0.50 at 180	0.25 at 180	+1.0 " " "
D.	2.75 at 170	2.50 at 175	3.50 " " 175
S.	2.0 at 180	1.75 at 5	2.50 " " 180
D.	0.12 at 180	0.5 at 90	-1.0 " " 90
S.	0.0 at 180	0.5 at 90	0.5 " " 90
D.	2.75 at 170	2.50 at 175	3.50 " " 175
S.	2.0 at 180	1.75 at 5	2.50 " " 180

AN OPHTHALMOLOGICAL PHASE OF THE DANGERS OF CONSANGUINEOUS MARRIAGES.

WILLIAM CAMPBELL POSEY, M. D., AND ALBERT C. SAUTTER, M. D.,
PHILADELPHIA.

The present communication is for the purpose of calling very briefly the attention of the profession at large to the positive evidence which ophthalmology can contribute to the dangers of consanguineous marriages. For, although prohibited by law in many states, and discountenanced by many religious sects, the marriage of cousins is often sanctioned by physicians, there being quite a widespread opinion in the profession that there is no danger in consanguineous marriages *per se*, provided both subjects be healthy and of healthy forebears, disastrous consequences to the offspring being observable only when the subjects or their ancestors are diseased or of weak constitution.

It is claimed by some that there is no proof that the marriage of relations can of itself create a morbid state, and this claim can not be disproved, for proper statistics are wanting, and all are familiar with the history of families where the offspring of consanguineous marriages were numerous and healthy.¹ Yet neither, on the other hand, can the converse be gainsaid, and the possibility of disease originating from consanguinity in the ancestry be excluded, obtainable histories being of too short an epoch in the life of a family from which to draw conclusive deductions.

While many practitioners, perhaps, have not been able to convince themselves of the danger of consanguineous marriages, ophthalmologists have regarded such unions with disfavor ever since Liebreich, a half-century ago, discovered an association between this form of wedlock and retinitis pigmentosa, a disease of the retina, which is not amenable to treatment and generally terminates in practically total blindness. Although its pathogenesis has not been definitely determined, reliable statistics show that at least 25 per cent of all cases of this disease occur after the marriage of relations. Thus, Groenouw cites figures which indicate that of 591 cases collected by Hutchinson, Bader, Webster and others, consanguinity could be traced in 159 cases, or 27 per cent, while Schmidt found a percentage of 22 among 294 cases. Nettleship,

1. The late Queen Victoria and her husband Albert were own cousins, Albert's father being Ernest I of Saxe-Saalfeld-Coburg and brother of the Duchess of Kent, Victoria's mother. At the queen's death in 1901, there survived her 6 out of 9 children, 31 out of 40 grandchildren, and 41 out of 42 great grandchildren, 78 surviving descendants. Since 1901, grandchildren have been born and none have died. See tables in Vol. III of Letters of Queen Victoria, 1837-1861.

in an analytical study of nearly 1,000 families, of which about 100 came under his own observation, concluded from his figures that the victims of this disease, beyond the possibility of doubt, are very frequently the children of blood relations, the relation being usually that of first cousins, though it may be more remote, and is occasionally much nearer.

Though undeniably frequently observed, after the marriage of relations, all attempts to prove that retinitis pigmentosa originates from the marriage of relations have failed, for this form of retinitis is strongly hereditary, and, as one or even more generations of families affected by it may escape, in the event of the disease appearing in the children of a consanguineous marriage, it is necessary to prove the non-existence of the disease in every direct ancestor for at least three generations before the ocular disease can be definitely determined to result from the marriage *per se*.

Nettleship's figures are of great value in this connection, for of the 976 families studied by him, which included about 1700 persons affected with retinitis pigmentosa and 300 others who were subjects of other closely allied forms of retinitis, evidence of heredity without consanguinity was found in 230, or 23.5 per cent; of consanguinity without heredity in 226, or 23 per cent, and of heredity combined with consanguinity in 32, or between 3 and 4 per cent. These three classes compose 488, or exactly one-half of the total 976, the notes of the other half of the cases being unavailable on account of insufficient data regarding the existence of consanguinity and heredity, though as Nettleship says, it is likely that had the investigations been more thorough, the number in which there was neither heredity nor consanguinity would be brought down to a very low figure.

The relationship of consanguinity to blindness in the United States may be judged from the figures of the last census (1900), in which it was found that of the 56,507 blind in our population, the parents were related as cousins in 2,527 or 4.5 per cent. If we assume that about 1 per cent of all marriages are consanguineous marriages (France 1853 and 1861), blindness thus occurred four and a half times oftener in the children of blood relations than in the offspring of a non-consanguineous parentage. If a more remote ancestry had been studied and if we consider that consanguineous marriages are not as a rule very productive, the percentage of blind following consanguinity should be considerably higher.

In the same census it was determined that 4,065, or 5.1 per cent. of the 89,515 who were returned as deaf were the children of cousins. This association between consanguineous marriages and deafness has long been recognized, and idiocy has also been found to be directly traceable to the marriage of relations in 7 per cent of the cases.²

In fine, while there can be no dispute but that the marriage of relations in some instances appears to be attended with no bad results, the figures of Bemis, which were based upon 823 marriages of cousins, are fairly indicative of the dangers attending this form of wedlock. As a result of these 823 marriages, 3,942 children were born, of whom 1,105 were defective, 145 deaf and dumb, 85 blind, 308 idiotic, 60 epileptic and 38 insane.

Contrasted with this report, however, as already stated, it is claimed though not proved, that if the stock of both the prospective father and mother, even though they be cousins, is healthy, the offspring will be healthy, and that it is only when there is a taint in "the blood" of the family that such unions are disastrous, being rendered so by the double liability and transmission of the taint or defect.

It is argued further that in-breeding is practiced with excellent results in animals, provided certain limits be maintained. Undoubtedly there is a great fundamental law of nature that the attributes of the parent descend to the child, and though this may be true of the stronger qualities, it undoubtedly is particularly true of the failings and defects of the parents.

While it is highly desirable that the profession should aim at some means of ascertaining by precise and sufficiently extensive statistics that consanguineous marriages are or are not of themselves harmful, it would appear to the writers that the consequences of such unions are sufficient proof of the liability of consanguineous marriages to originate disease and that it is necessary that such marriages should be prohibited by law and discouraged by the profession.

And the evil does not cease with the creation of the diseases which have been mentioned, for all are strongly hereditary, and the taint transmitted from generation to generation. Thus, referring to the ophthalmological phase. Nettleship cites a family which was observed through several generations, in which 38 persons were affected with retinitis pigmentosa, in a total of 200, or nearly

2. Kerlin, from an analysis of one hundred cases of idiocy and imbecility.

1 in every five; Snell, a family through five generations, in which 29 persons were affected in a total of 72, about 1 in every 2.1-3; Schneider likewise observed a family which showed continuous inheritance through five generations; Leber and Ayres through four generations; and some half-dozen writers have reported cases occurring through three generations. One of the writers (Posey) has two generations of a family under his observation in which the disease is said to have existed for two centuries.

In view of these facts, are any two individuals warranted, for the consummation of their own happiness, in running the risk of originating a disease which may bring untold misery through many generations upon a numerous progeny, and can the profession do less than aid legislation in its efforts to exterminate the disease? Marriage should be denied to all subjects of retinitis pigmentosa, the physicians diagnosing the condition invariably instructing those afflicted with it of the probability of its transmission to future generations.

The dangers of consanguineous marriages should be communicated to students of medicine, that they may have definite information with which to counsel laymen; and above all, it is very desirable that the profession should be of one mind and firmly decided in the position which it assumes and the advice which it renders in the matter of consanguineous marriages. The evidence offered by ophthalmology can not be dismissed, and be the causal factor consanguinity or heredity, or heredity combined with consanguinity, the statistics which show that at least 4 per cent of the blind and deaf, and that 7 per cent of all idiots are the children of a consanguineous parentage, and that these deficiencies of sight and hearing, conjoined with other defects of mind and body, are transmitted through many generations, should be sufficient to enable every practitioner to answer the question, "Is the marriage of cousins justifiable?" by an emphatic and justifiable "No."

Reports of Societies

OPHTHALMIC SECTION OF THE AMERICAN MEDICAL ASSOCIATION.

CONTINUED.

Epibulbar Leucosarcoma—Exenteration of Orbit—No Recurrence at Original Site—Death in Three Months from Metastases.

Casey A. Wood, M. D., Chicago: A detailed history of the tumor growth is given with nasal examination, eye findings, etc. The tumor was a large tense, semi-transparent swelling, involving about $\frac{1}{2}$ of the upper surface of the globe. There was no involvement of the other ocular structures and movement was normal. Enlargement of the corresponding preauricular gland was noted as well as of the submaxillary and anterior cervical glands. Skiagrams were negative. Calmette in opposite eye was negative. Potassium iodide in large doses with pilocarpine sweats with little change. A tentative diagnosis of leucosarcoma was made. A specimen from the tumor had the appearance of a small round-cell sarcoma. Exenteration of the orbit with removal of the preauricular, submaxillary and cervical glands showing enlargement. Microscopical examination of these specimens showed infiltration with the small round cells of the original growth. Patient was well until three months later, when death occurred suddenly with abdominal symptoms. No autopsy.

DISCUSSION.

Dr. Melville Black, Denver, said that as he never had had such a case, he could only suggest that it was a calamity that an autopsy could not be made or that the child did not live long enough to determine whether or not recurrence would have taken place in the orbit.

Dr. Geo. F. Keiper, Lafayette, Ind., said that Parsons reported 80 such cases. The speaker had seen one case of spindle-cell sarcoma at the inner canthus and adherent to the eyeball. It was removed by exenteration of the orbit and no recurrence in ten years. Most such cases occur in adults, so that Dr. Wood's case is unusually rare in that respect also.

Rodent Ulcer of the Cornea (Mooren's Ulcer).

Robert L. Randolph, M. D., Baltimore, Md.: Credit is given to Mooren, who most adequately described this form of ulcer. Especial-

ly in the early stages is it with difficulty recognized. One diagnostic point is the extensive undermining at the conjunctival border, the corneal border, of course, always being undermined. Chronicity is characteristic, the cases running from two months to a year. The course of the case with the treatment used, is given in detail. Galvano-cautery, if applied early, seems the most reliable treatment. This condition practically never occurs under forty years of age. The etiology is in doubt. It has been thought to be due to disturbance in the nerve supply as corneal anæsthesia has been noted frequently. The author considers that the origin is probably bacterial. If active treatment is not successful after two months, atropine and normal saline irrigation with general supporting treatment, offers the best hope for healing without dense leucoma.

DISCUSSION.

Dr. Barton Pitts, St. Joseph, Mo., uses a strabismus hook heated in an alcohol lamp instead of galvano-cautery. He also employs paracentesis corneæ through the base of the ulcer and finds it very efficacious even in desperate cases.

Dr. Donovan, Butte, Mont., reported a case of rodent ulcer entirely surrounding the cornea at the limbus with a width of 2-3 mm. Galvano-cautery, actual cautery, nitric acid and red iodide of mercury ointment 1-2000 was used with no permanent results. Continuing the red iodide of mercury ointment, however, finally checked it with a 3 mm. clear cornea at the center.

Dr. H. Gifford, Omaha, considers this form of ulcer very rare. He reported a case which was very resistant to treatment. He cut away the undermined conjunctiva and thoroughly cauterized the area denuded, which brought about healing.

Dr. Randolph (closing) emphasized the need for accurate diagnosis, as the real rodent ulcer is very rare. He had used a platinum loop heated in a Bunsen burner, as well as the galvano-cautery. He does not use paracentesis, as one author reports loss of all the eyes in which it was used.

The Management of Acute Hemorrhagic Glaucoma in the Presence of Advanced Arteriosclerosis.

Chas. Stedman Bull, M. D., New York, N. Y.: Hemorrhagic glaucoma is defined as a glaucoma occurring suddenly in an eye in which retinal or other intraocular hemorrhages have previously occurred before any glaucomatous symptoms were present.

The diagnosis is essential as an operation is contra-indicated in such a case, while it may be indicated in a glaucoma with secondary hemorrhage. General arteriosclerosis is the predisposing cause and results from chronic arterial hypertension. Early recognition of the latter condition and proper treatment by means of diet, drugs, etc., will prevent the development of arteriosclerosis. Author's treatment is a careful paracentesis of the cornea with slow escape of aqueous, cocaine being the anesthetic, as general anesthesia in such patients is dangerous. Miotics and hot applications and leeches are then used and jaborandi internally. The after care of the case is most important and an outline of such treatment is given.

DISCUSSION.

Dr. Melville Black, Denver, believes that a general examination of heart and circulation is advisable before prescribing drops. If vaso-dilators are prescribed empirically, those cases where low tension exists will be harmed. He reported several cases of this type in which vision was lost. He believes in appropriate general treatment, especially a simple vegetable diet.

Dr. Edward Jackson, Denver, said that arteriosclerosis was frequently a localized process. He believes that nearly all cases of primary glaucoma have high blood pressure. He had operated on a case with large retinal hemorrhage and blood pressure of 175 with a good result. Posterior sclerotomy is equal to paracentesis of the cornea or superior as it opens choroidal vessels and so relieves blood pressure in the eye. He has found vein formation in the scar after iridectomy, cyclodialysis and sclerotomy and this probably aids in reducing tension. He has never seen any reduction of blood tension from nitrites.

Dr. F. H. Verhoeff, Boston, said that pathology shows that this form of glaucoma is not due to hemorrhages, as these lie in the retina and not in the vitreous. The hemorrhages may be due to high blood pressure, but have been found to be due in some cases to endophlebitis of the central vein. Treatment is not usually a success as far as vision is concerned, but relieves pain and may save the eye.

Dr. Randolph, Baltimore, reported a case of this kind where, after iridectomy had failed, posterior sclerotomy in three places reduced the tension. A similar case resulting from pregnancy was also relieved by sclerotomy after iridectomy failed. He agreed with Dr. Verhoeff as to the anatomic changes.

Dr. D. W. Greene, Dayton, O., after a study of 700 cases of blood pressure in men over 60 years, said that he had never seen a case of glaucoma with normal blood pressure, all having 160 mm. or over.

Dr. Myles Standish, Boston, agreed with Dr. Bull's definition of hemorrhagic glaucoma, granting that the hemorrhages are usually retinal. It is difficult to prove the role played by the kidney lesions in causing hypertension in the arteries. Rest and quiet are necessary. He avoids iridectomy and follows Dr. Bull's methods. He has seen good results follow repeated paracenteses possibly by giving filtration scars.

Primary Hemorrhagic Glaucoma, with Probable Sympathetic Inflammation—A Clinical and Microscopic Study of a Case.

Mortimer Frank, M. D., Chicago: The author brings out the following points: A broad iridectomy freeing the filtration angle is not always a preventive of glaucoma, although it is the best method of treating acute glaucoma, and that diminished depth of the anterior chamber and narrowing or closure of the filtration angle are not essential in causing glaucomatous symptoms, but that perhaps hypersecretion and changes in the character of the fluids are concerned in the onset of glaucoma. The history of the author's case is given in detail. Miotics, dionin, leeches and hot applications relieved the pain. Paracentesis of the cornea with slow escape of aqueous, caused little rivulets of blood to appear on the iris. Two sclerotomies and finally an iridectomy were performed without permanent relief, and upon the appearance of a descemetitis in the other eye, enucleation of the first eye was done. Anatomic studies are given in detail, with deductions therefrom in comparison with the clinical findings.

DISCUSSION.

Dr. S. D. Risley, Philadelphia, thinks that from a study of the enucleated eye another opinion is possible in this case. The occurrence of hemorrhages during low or high tension depends upon which set of vessels furnish the hemorrhage, retinal vessels rupturing with suddenly reduced tension and the veins leaking with high tension. This case was glaucoma with hemorrhages, not hemorrhagic glaucoma.

Dr. W. L. Pyle, Philadelphia, said that he had seen Dr. Frank's case and had thought it one of sympathetic inflammation.

Dr. Harold Gifford, Omaha, agreed with Dr. Frank as against

Dr. Brown in calling this case sympathetic ophthalmia. We cannot as yet diagnose such cases from the microscopic findings, while in this case all the clinical signs of sympathetic ophthalmia were present.

Dr. E. V. L. Brown, Chicago, said that we know when sympathetic ophthalmia is present or not, just as well as we know about sarcoma. Fuchs has studied 200 cases and identified 25 cases of whose origin he was ignorant, as having sympathetic ophthalmia, and 24 of these were shown to have had it clinically. Fuchs' findings have been accepted by Weinstein, Collins and others. The only clinical findings indicating sympathetic ophthalmia were the precipitates on the posterior layer of the cornea and upon these alone a diagnosis cannot be made.

Dr. Price, Nashville, said that sudden reduction of pressure in a boiler will cause explosion and this is analogous to the eye with high tension upon which an iridectomy is done. The whole condition was probably due to an autoinfection somewhere. Dr. Bull's case and Dr. Frank's case were opposite in character and required different treatment.

Dr. F. H. Verhoeff, Boston, said that he agreed with Dr. Brown. The essential lesion is simply freed collections of lymphoid cells, in the center of which epithelial and giant cells occasionally appear. He has never seen a case of sympathetic ophthalmia develop after an eye has been enucleated. The case looks more like a serous iritis.

Dr. Frank (closing) said that he accepted Dr. Risley's criticism of the title of the paper, but could not agree with the pathologists, as the clinical findings were those of a sympathetic ophthalmia.

Nodular Opacity of the Cornea—With Special Reference to Its Etiology.

John Green, Jr., M. D., St. Louis: Groenow was the first to adequately study nodular opacity of the cornea. The subjective signs are slight, usually being a sense of discomfort and gradual loss of vision. Both eyes are attacked, the opacities being gray, irregular raised areas in comparatively clear corneæ and located in the central area. The course is chronic and the cause is supposed to be a nutritional disturbance. Treatment is of no avail. Wehrli described the finding of giant cells and two organisms resembling tubercle bacilli in one case. Most pathologic reports, however, con-

sider the deposits to be hyaline. Detailed reports of various observers are given with their conclusions, the author's case showed unmistakable tubercular influence. Diagnostic injections produced local and general reaction and therapeutic dosage of tuberculin resulted in marked increase in vision. The author, therefore, considers his case one of attenuated tuberculosis.

DISCUSSION.

Dr. Wm. Zentmayer, Philadelphia, reported a typical case and gave the pathological report, showing the degeneration of the corneal cells and fibres as found by Fuchs and Peterstein. A high-pitched apical condition was found, but there were no evidences of tuberculosis.

Dr. Wilkinson, Washington, D. C., reported a case in a man of 70, a hard drinker, but with no evidence of syphilis or tuberculosis. Both eyes were involved and the opacity was central, better vision being obtained by mydriatics. Operation refused.

Practical Importance of Hyperphoria, in Prescribing Lenses for Use at Particular Distances and in Different Directions.

M. D. Stevenson, M. D., Akron, Ohio. The author suggests the importance of accurately estimating hyperphoria by repeated observations both for distance and for near. Hyperphoria of less than 2 degrees may be arrested by decentering, above 2 degrees by prisms and, according to Fuchs, more than 6 to 7 degrees of hyperphoria require operation. Hyperphoria is shown to vary for distance and near with different positions of the head. The author has an instrument for measuring the hyperphoria at various angles for near, the average person showing an angle of 30 degrees. Hyperphoria for near occurs very frequently in anisometropia and the stronger lens may be decentered. Difficulty in wearing bifocals is chargeable many times to this difference in hyperphoria.

DISCUSSION.

Dr. G. C. Savage, Memphis, said that a binocular test was unreliable because it allowed the volitional centers to act. His own monocular instrument was the best, as the true test for hyperphoria was the distance test which he described. Having found a hyperphoria, in order to decide whether it was due to paresis or tonicity, remove the phorometer and tilt the patient's head up and down and if there is no diplopia there is no paresis.

Dr. William Zentmayer, Philadelphia, said that he did not

agree with the speakers who advised vertical prisms. He had practically given them up, as he had found that the hyperphoria disappeared under full cycloplegia.

Dr. E. E. Holt, Portland, Maine, also found that the full correction of the ametropia was sufficient without prisms or decentering lenses. He believes the binocular test for hyperphoria to be correct, as he has been able thereby to diagnose some general diseases, such as diabetes.

Dr. Mark D. Stevenson, Akron, Ohio, (closing) said that he was glad to learn that a flake segment can be put on in bifocals, as he had been able to get only the perfection bifocal. He had tried the proper correction of the ametropia in cases which later were made comfortable with prisms. Hyperphoria is often variable and may disappear with improvement in the general health. He does not agree that a monocular instrument is necessary and his experience shows that there is a difference in the hyperphoria for distance and near and at different angles for near.

A Clinical Investigation on the Relationship of Tuberculosis to Certain Diseases of the Eye.

George S. Derby, M. D., Boston, and Thomas H. Ayer, M. D., Westboro, Mass. The authors present a study of 92 cases which in the origin was thought to be tuberculosis. Each patient has a careful history taken, then a cutaneous test is made, using full strength old tuberculin. A general examination with special reference to possible tuberculosis was made and in some cases where other findings were negative the subcutaneous test was made. No case showed tubercle bacilli in the sputum. The process in the eyes resulted in division of the cases into those with superficial lesions and those with involvement of the deeper ocular structures. Each group is thoroughly analyzed and it is recommended that these cases be given a general examination as a routine in order to reach an early diagnosis of a possible general tuberculosis. The authors have succeeded in establishing the class method of treating ocular tuberculosis at the Massachusetts Eye and Ear Infirmary. Small injections of tuberculin are recommended as the treatment, beginning with 0.0001 mg. and increasing. It is necessary to send selected cases to sanatoria where they may obtain the proper general care.

DISCUSSION.

Dr. William H. Wilder, Chicago, said that his results agreed

with those of Dr. Derby. The cutaneous test is unreliable in adults, as a means of diagnosing eye lesions, but indicates the need of general diagnosis and treatment. Some ocular lesions may be the result of the tubercular toxins generated elsewhere and are not necessarily foci of tuberculous infection of the eye.

Dr. W. C. Posey, Philadelphia, said that this paper was further evidence of the tuberculous origin of phlyctenulæ and should encourage us to have general examinations made. He quoted the statistics of Uthoff's clinic showing that phlyctenular cases showed 63.4 per cent were tubercular and that by the older diagnostic methods. The diagnosis by subcutaneous injection is also not infallible as a local reaction in the eye does not always follow. He has observed small tongue-like, yellow-white infiltrates projecting from limbus into the corneal lamellæ and similar oval areas appearing caseous and avascular as significant of tuberculous keratitis, while the drops of cold mutton fat decomposition in the posterior corneal layer has been noticed in cases of tubercle of the iris and deeper structures.

Dr. G. S. Derby, Boston (closing), said that little stress was laid upon positive reactions, but that two negative reactions were enough to exclude tuberculosis.

Neuropathic Keratitis and Some Allied Conditions, with Special Reference to Treatment.

F. H. Verhoeff, M. D., Boston. Cases of neuropathic ocular disease, especially keratitis, are frequently overlooked and the effort made to show bacterial influence. Only a small number of these cases are recognized, namely, neuropathic disease of the cornea, iris and conjunctiva, that is, disease due to disturbance of their nerve supplies. Herpes zoster corneæ, keratitis neuroparalytica, herpes febrilis corneæ and herpes corneæ neuralgicus belong to this class. Other forms of keratitis thought to belong to the same class are the dendritic, superficial punctate, profunda, disciformis and traumatic relapsing erosion of the cornea. Hyperesthesia corneæ and staining with fluorescein are valuable diagnostic signs and in relapsing cases are shown to be present even between attacks. Many cases of *ulcus serpens* have a neuropathic origin. These lesions are now known to be due to an irritative lesion of the fifth nerve or Gasserian ganglion. The author offers the theory that the efferent impulses produced by the fifth nerve lesion when continued produce changes at the terminals, such as an acid reaction similar

to Fischer's theory of oedema. Trauma is the most frequent cause of neuropathic keratitis.

Dr. W. Zentmayer, Philadelphia, said that as only a few cases have been examined anatomically the neuropathic as against the traumatic theory is not certain. He referred to two cases of de Schweinitz and Treitle showing a purulent keratitis favoring a mycotic theory. He also mentioned a study of twenty-one cases of extirpation of the Gasserian ganglion, in which eleven cases of keratitis developed in which Davies and Hall found an unknown bacillus which with the eye lids seemed the cause. When the lids were closed there was improvement. The neuropathic origin of dendritic keratitis had previously been suggested by Charles in 1904, and Ellett in the same year expressed the belief that the condition was of trophic origin. He believes in Fuch's theory that keratitis disciformis is due to organisms of less virulence than those of abscess. Zur Nedden recorded a case where the streptothrix was found. He has always felt that the isolated phlyctenules occurring away from the limbus were tubercular, but Dr. Verhoeff's suggestions as to neuropathic origin are valuable. He agrees as to the value of holocain in superficial erosions. He quoted Cohen's statistics on the tubercular origin of phlyctenulae.

Dr. Verhoeff, closing, said that time did not permit him to fully answer Dr. Zentmayer, but that his paper would stand as an answer. The bacilli found by the English observers were evidently xerosis bacilli.

Lachrymal Gland Tumors.

L. D. Brose, M. D., Evansville, Ind.: The author first gives the anatomy of the lachrymal gland and surrounding parts. He then reports in detail a case where tumor of this gland was found which showed on microscopical examination after removal an adenoma of the lachrymal gland undergoing malignant change. Most tumors of this gland have been benign, but the various sarcomas and carcinomas, as well as chloroma, have been found. The author would designate them by the varieties of tissue found as fibroma, adenoma adenofibroma and adencendtheliofibroma. Acute swelling of the glands may arise from erysipelas or other infective process about the face. Chronic swelling from lues or tuberculosis and retention cysts may develop, also adenoids and hydatids. A favorable prognosis is justifiable in the great majority of cases after removal of the gland.

Isolated and Complete Paralysis of the Third Nerve of Traumatic Origin—Report of a Case.

Lee Masten Francis, M. D., Buffalo, N. Y.: The author's case was one of foraminal paralysis resulting from traumatism. The patient bumped her head at the outer angle of the left supraorbital margin. About three-fourths of an hour later complete ptosis was noted. When examined isolated complete third nerve paralysis was diagnosed. Daily faradic current was applied and gradual improvement took place until in two months conditions were normal. The lesion was probably a hemorrhage into or about the sheath of the third nerve. Nine similar cases from the literature are quoted.

In conclusion the author translates verbatim the conclusions of Dr. Girardot's admirable thesis on this subject:

1. Traumatic paralysis of the motor oculi are rare, especially when one takes into consideration the frequency of palsies of the ocular muscles.

2. The anatomic relations of the motor oculi with the base of the brain are such as to make laceration or compression by bone lesions easy. Indeed, it is not uncommon to see paralysis of the motor oculi associated with those of the facial, or patheticus or abducent and following fractures of the skull, but the isolated paralysis of the third nerve are independent of fractures. They are, probably, due to a hematoma located about the nerve or in its sheath.

3. From the standpoint of symptomatology there is nothing of special interest, except that they are isolated and complete.

4. Admitting compression by hematoma it does not seem that surgical interference is justifiable, for though the process be a slow one, recovery occurs spontaneously in two months.

Dr. Wendell Reber, Philadelphia, said that isolated traumatic palsies of the sixth, seventh and fourth cranial nerves were common, but he had not seen the traumatic palsy of the third. Frontal sinus operations may cause palsy of the fourth and minor fractures at the base frequently cause palsy of the sixth. He thought it very important to exclude hysteria. There was a lack of the necessary symptoms for a hemiplegia. By exclusion he thought the lesion must be a fracture at the sphenoidal fissure with a small hematoma. He referred to cases reported by Dr. Risley showing the transmission of force along the orbit to its apex, resulting in optic atrophy even six months later.

Galvanocautery Puncture in Ectropion and Entropion.

By S. Lewis Ziegler, M. D., Philadelphia: The author's procedure is applicable to the following conditions:

- A. Spastic entropion or ectropion.
- B. Senile or relaxed ectropion or entropion.
- C. Paralytic ectropion.
- D. Contraction from lachrymal irritation.
- E. Moderate cicatricial contraction.
- F. Small cicatricial distortions or dimplings.
- G. Cases of distichiasis.

The instruments employed are a short cautery point, thick but sharp at the tip, and a lid clamp made with sliding catch instead of the screw. Instillations of 4 per cent cocain or injections under the conjunctiva are sufficient for the anesthesia in ectropion. In entropion bromide of ethyl, ether, etc., may be used, always removing the ether cone when the galvanocautery point is used to avoid explosion. The lid clamp is fastened with its straight edge at a distance of 6 mm. from the corneal margin, then 4 mm. from the margin a row of punctures 4 mm. apart is made by plunging the cautery point into and through the cartilage and at once withdrawing it. The punctures are made on the surface where contraction is desired, conjunctival surface for ectropion and skin surface for entropion. There is seldom any reaction and punctures may be repeated in two or three weeks in fresh areas between the previous punctures. A series of cases in detail with photographs accompany the article.

DISCUSSION.

Dr. William Zentmayer, Philadelphia, reported six cases operated upon by Dr. Ziegler's method for entropion. The effect was most gratifying and in only one case was it necessary to repeat the operation. He injected cocain into the lid and no pain was felt. No bandage was used.

Dr. Barton Pitts, St. Joseph, Mo., had tried the cautery, but with success in only a few cases of spasmodic or senile entropion of the lower lid. He does not believe that any cautery procedure will relieve entropion of the upper lid from trachoma. For these cases he employs the Hotz operation with transplantation of a mucous flap from the lower lip.

Dr. S. Lewis Ziegler, Philadelphia, closing, said that the cautery points may be had from the Keystone Electric Company

in Philadelphia. The puncture must be quickly made. This operation is not to take the place of all plastic operations, but only those of moderate degree. It may be used to finish up a plastic operation which is not quite smooth.

The Operative Treatment of Glaucoma by Cyclodialysis.

Arnold Knapp, M. D., New York: The author briefly describes the Heine operation known as cyclodialysis and the operative technic. In all eighteen cases selected as a severe test have been operated and studied for a sufficiently long time to be of value in forming an opinion of the worth of this operation. The cases studied included cases of chronic glaucoma, congenital glaucoma, glaucoma due to capsular adhesions to the cornea, and glaucoma secondary to neuroretinitis with vascular changes and retinal hemorrhages. Eleven cases maintained normal tension for periods of two months to two years. The operation is of value in advanced chronic glaucoma and where an iridectomy has failed but cannot replace the latter in the earlier stages of the disease.

DISCUSSION.

Dr. W. H. Wilder, Chicago, had used this method in four cases. He reported one of acute glaucoma with tension plus 2 and vision 22/100, steamy cornea and contraction of visual field. The anterior chamber was very shallow, so that the cyclodialysis was done as a preliminary step to iridectomy. Two days later tension had fallen and vision began to improve so that vision was 20/30 and fields almost normal in two weeks. The case was observed five months with no relapse. In one case the operation was done three times, then an iridectomy, but even that did not suffice. It is very valuable in hemorrhagic glaucoma or where tension is very high.

Dr. H. Gifford, Omaha, said that this operation was originated on a wrong principle, as it is impossible to produce a permanent opening into the suprachoroidal space. The relief which follows is due to atrophy of the ciliary processes, resulting in lessened secretion, so that second operations should be done at a different point to produce as much atrophy as possible. Teichmann found this reduction of tension subsequent to experimental removal of the ciliary processes.

Tenotomy or Advancement.

Lucien Howe, M. D., Buffalo, N. Y.: The author discusses the relative importance of tenotomy and of advancement and the indications for preferring each operation. Excessive action of a

muscle or group of muscles generally indicates tenotomy of that muscle, while in a deviation produced by the insufficient action of a certain muscle advancement of the weak muscle is proper. There are three classes of heterophoria, those with paralysis, paresis or insufficient muscle action; those with a spasm or excessive muscle action, and those in which both the above conditions are found. In deciding upon the form of operation it is necessary to know the refraction with the condition of the ciliary muscles; the extent of the arc of rotation and the behavior of the eye in rotating, as shown by the perimeter and tropometer; the exact character of the arc of rotation as shown by photographic tracings; the lifting power of the abductor and adductor as shown by the ophthalmodynamometer. Each of these examinations is dealt with in detail by the author. Care and patience in deciding upon the proper form of operation is absolutely necessary for success, although there is no inflexible rule, each case being decided upon its merits.

DISCUSSION.

Dr. Broughton, New York, did not think that the strength of the muscle had much to do with the heterophoria as an exophoria could exist with an adduction of 50. The attachment of the muscle should be regulated. In extreme cases each side may be tenotomized and later advanced to get exactly normal rotation.

Dr. Valk, New York, thought that normal balance for infinity was quite sufficient without bothering about the near point. He measures the rotations with the Stevens tropometer and acts upon the evidence thus found.

Dr. F. C. Todd, Minneapolis, said that the question was a difficult one to settle, but Dr. Howe's valuable contributions would be of great help. Usually we should tenotomize a too strong muscle and advance a too weak muscle. The object is to secure correction of the defect with binocular vision and normal rotations. An advancement operation usually gives a more lasting effect than tenotomy as cicatricial contraction aids an advancement and lessens the value of a tenotomy. In cases where binocular vision may be hoped for Dr. Howe's rule is preferable, but where one eye is hopelessly amblyopic advancement with tenotomy is indicated. A study of these cases should be made both before and after operation.

Dr. E. E. Holt, Portland, Maine, agreed with Dr. Howe on the necessity of careful examination. He mentioned the unfavorable reception which his first paper on advancement received. Dr.

Knapp in discussing it said he would rather make three tenotomies than one advancement. He considered it dangerous. Dr. Theobald had then endorsed Dr. Knapp's statements and said he never found it necessary to do an advancement. The next year Dr. Knapp changed his attitude. The speaker was the first to introduce this operation in America.

Dr. Alexander Duane, New York, said that each case must be judged by itself. The range of co-ordinate binocular movements is of more help than monocular rotations. He gave the details of this examination and his conclusions necessary to determine the form of operation in a concise manner with many valuable practical hints. We should avoid complete section of the superior and inferior recti lest paralysis result. The effect of a tenotomy when good in the primary position is exaggerated in the periphery of the field of fixation while an advancement produces about the same effect in both positions. A tenotomy serves better in correcting a paresis frequently than an advancement.

Operative Treatment of Papilledema Dependent on Increased Intracranial Tension.

George E. de Schweinitz, M. D., and T. B. Holloway, Philadelphia: This paper is limited to the consideration of the removal of a portion of the skull for the relief of papilledema. Sir Victor Horsley first noted this relief of an optic neuritis following operations on the skull to remove brain tumor. The history of previous work along this line is given and from this it is established that release of intracranial tension cures optic neuritis; second, papilledema is dependent to a great extent upon increased intracranial pressure. The results of these operations are compiled in three tables, which may be summarized as follows:

The results of table 1 may be summarized as follows:

Subsidence of the choked disc and improvement in vision.....	16
Preservation of vision.....	6
Primary improvement but later failure or return of choked disc	4
Primary improvement of vision, but early death.....	3
Unimproved	8
	—
	37

The results of table 2 may be summarized as follows:

Subsidence of choked disc and improvement in vision.....	7
Preservation of vision.....	2

Primary improvement but later failure or return of choked disc	2
Primary improvement in vision but early death.....	5
Unimproved	2
Early death.....	9
	<hr/> 27

The results of table 3 may be summarized as follows:

Subsidence of the choked disc and improvement of vision.....	21
Preservation of vision.....	5
Unimproved	8
	<hr/> 34

Successful radical operations, as far as improvement or preservation of vision, were twenty-two in number or 59.50 per cent. Of the exploratory operations 33.3 per cent were successful. Of the decompressive operations improvement or preservation of vision occurred in 76.5 per cent. Indications for operation are given in detail with the diagnostic signs of the different stages of the papilledema. Papilledema occurs in 80 per cent of brain tumor and usually comes on slowly. Experimental disc-edema has been known to occur very rapidly, while in other instances where a bland fluid was injected there was no edema whatever. Most pontine and sub-cortical tumors do not cause optic neuritis. Operation is indicated when vision is first affected, if other aspects of the case also warrant it, early operation being necessary to prevent subsequent optic nerve atrophy. An analysis of the authors' cases is given with details of the case histories.

1. The most satisfactory treatment for the purpose of preserving vision in any case of choked disc or papilledema not due to a toxic process or constitutional disease (infectious optic neuritis), but depending on increased intracranial tension, is decompressive trephining, with the removal of the growth if it is accessible.

2. This operation should be performed early, and, if it can be done during the first, second or even the third stage of papilledema, the prognosis as to sight is most favorable.

3. If for any reason the operation is postponed until the development of the fourth and fifth stages of papilledema, already associated with marked depreciation of vision, the prognosis as to sight is unfavorable, but even under these circumstances the operation should be performed, because it sometimes preserves such vision as still remains.

4. In non-syphilitic cases, time devoted to the administration of iodides and mercurials is time wasted, but after the operation their exhibition appears to exert a beneficial influence.

5. The investigation of the eyes must include not only an ophthalmoscopic examination, but also a careful estimation of the visual field, the color perception, the light-sense and the size of the blind spot.

6. Patients afflicted with papilledema depending on increased intracranial tension should have the case fairly stated to them, and the operation should be urged, in spite of the occasional unfavorable results, because in its absence ultimate blindness is almost always sure to result.

The Surgical Aspects of Cerebral Decompression—With Remarks on the Etiology and Certain Manifestations of Papilledema.

Charles H. Frazier, M. D., Philadelphia: The author emphasizes the importance of co-operation of the surgeon, neurologist and ophthalmologist in all cases of this nature. As a result after animal experimentation the author concludes that:

1. Increase of intracranial tension by artificial means up to a point attended with profound disturbance of the circulatory and respiratory functions was in no instance attended with development of a papilledema, except in two instances not here recorded, and in these there was no marked swelling of the disc, but only a slight edema and filling in of the center of the discs.

2. The duration of the observation varied from two to ten hours; in one instance increased intracranial tension was maintained and observations made from six o'clock in the evening to four o'clock the next morning. So that the element of time did not affect the results.

3. In some instances the eyegrounds were bleached (the stage of anemia) and in many there was more or less fullness and occasionally pulsation of the retinal veins, but nothing else.

4. The degree of intracranial tension artificially produced in these experiments exceeded by far that which obtains in the vast majority of these lesions of which papilledema is a clinical manifestation.

5. Therefore, in the etiology of papilledema some factor or factors other than increased intracranial tension play an important part.

6. What these may be is still a matter of conjecture.

Only two cases of papilledema were found by Dr. deSchweinitz among the cases of intracranial trauma with hemorrhage, in the author's service at the University Hospital, showing its rarity in such conditions and that it has slight value as an indication for a decompressive operation. The relative extent of the papilledema in either is no indication of the tumor location; in fact, the height of the oedema was fairly uniform, 3 to 4 D. Three tables accompany the article giving the results and notes of operated cases, etc., and the relative amount of papilledema before and after. On the whole, the decompression operation offers more than any other procedure and is less dangerous. Vomiting and headache, one or both, are relieved in two out of three cases by decompression. Even though the condition producing the papilledema will end the patient's life sooner or later, the operation with consequent relief of headache and vomiting and preservation of sight is well worth while.

DISCUSSION.

Dr. Edward Stieren, Pittsburg, reported a case in which the vomiting, headache, etc., were relieved by a decompressive operation, but vision became steadily worse in spite of the disappearance of the choked disc. He suggested that this result might be due to the cancer poison or to a direct involvement of the optic tracts. One of his reported cases had been quoted as having lived five months but who had lived three years.

Dr. R. L. Randolph, Baltimore, said that he could not account for the difference in the results obtained by deSchweinitz and Frazier and those of Bordley and Cushing. He wished to know if similar animals and technic had been used. He thought there must be some other factor besides the high tension to cause choked disc.

Dr. William G. Spiller, Philadelphia, spoke of the dangers of the operation, the possible further loss of sight and of hemorrhage causing hemiplegia. Hemiplegia was caused in one case by a blocking of the vessels in many cases, but such operations should be done only after careful study of the case.

Dr. William H. Wilder, Chicago, mentioned a case where a decompressive operation had been performed for a choked disc of 7 D. Aphasia followed and weakness of the hand developed which extended and paralysis of the arm and lower face muscles resulted,

due to the compression of the brain substance in the hernia. The paralysis, etc., slowly disappeared and the discs receded to 4 D., where they remained. Vision was 20/50 with contracted fields and these have been maintained. He believes that there is direct toxemia from the tumors frequently, as was apparently true in a case of Dr. Peter Bassoe where no relief followed decompression while marked relief came after the removal of the tumor later.

Dr. Bulson, Ft. Wayne, Ind., agreed with Dr. Spiller that great care was needed in deciding upon this form of operation. He had four cases where, if the tumor had been allowed to grow until accurate localization was possible, it is most probable that their lives could have been saved. The operation saved their vision, however. The tumor should be localized if possible even if sight be lost.

Dr. Randall, Philadelphia, reported a case with choked disc of 8-9 D., where operation restored vision in one eye, but in the other macular lesions like albuminuric retinitis were present. The case is probably luetic and the operation was temporary until active treatment could have a chance to work.

Dr. Nelson M. Black, Milwaukee, spoke of having examined the fundi in three cases of street car injuries, in two of which there was measurable choked disc which partially disappeared in two weeks and entirely after decompression.

Dr. Frazier, Philadelphia, closing, said that he did not know what technic had been followed by others. He has never seen papilledema in the dog similar to that observed in the human subject. He thinks that while conservatism is necessary, six weeks to two months is long enough to observe a case. He said that a tumor could be localized as well after as before decompression should it continue to grow, but that the localization was thus delayed. However, relief of vomiting, blindness, etc., seemed to justify early operation. If the operation is always done on the right side no hemiplegia or paralysis will follow. Trauma may produce papilledema, but it does so rarely and usually subsides early. Early operation in such cases is unnecessary.

Dr. George deSchweinitz, Philadelphia, agrees with the idea of careful study of each case before operating. New tests are being found which will aid the diagnosis. The visual fields as studied by Bordley and Cushing are important. It seems impossible from the experiments and the clinical results to believe that increased tension is the only factor in producing papilledema. The experiments are as yet imperfect, but will be elaborated.

The Prophylaxis of Interstitial Keratitis.

H. Gifford, M. D., Omaha: Interstitial keratitis, especially in regard to its prevention, has received little attention. The great majority of cases are due to congenital syphilis, though some are tubercular and some due to malaria. The teeth are valuable aids in the diagnosis of inherited syphilis and are discussed at length by the author. The early diagnosis should be facilitated by means of well illustrated treatises showing the many variations in the appearance of the teeth. The serum diagnosis should also be used. Children admitted into institutions should be thoroughly examined and if signs of inherited syphilis are present appropriate treatment should be given. Ten illustrations are given from Hutchinson, showing the typical forms of incisors which at first are lobed, then notched, and then frequently blunt as they wear away. Hutchinson describes cases of normal canines with small, discolored incisors and again canines which have a blunt, discolored peg projecting from normal tooth tissue. This same picture may be seen in the molars which later, after wear, show a flat carious crown. The treatment is by inunctions of mercury daily for a week, then a week of rest and inunctions for one week in three for two to four months. In the intervals iodides and arsenic are given. In this way it is possible to prevent occurrence of the keratitis in the second eye.

DISCUSSION.

Dr. L. Webster Fox, Philadelphia, referred to its occurrence in childhood just before puberty and to Jonathan Hutchinson's idea that the molars, as well as the central incisors, were frequently involved. Mercury does not seem to control all cases. Perhaps Dr. Wiener's operation for removal of corneal scars may be of assistance in bettering the vision in those cases left with dense opacities. Dionin, sugar or salt may be used to clear up these corneae.

Dr. S. D. Risley, Philadelphia, does not think that interstitial keratitis is necessarily due to inherited syphilis even when notched teeth are present. The ductless glands are frequently involved and exhibition of the thyroid extract is frequently indicated, especially where any cretinoid symptoms are present.

Dr. F. H. Verhoeff, Boston, suggested the use of a 1-5000 solution of mercury bichloride in both eyes as a prophylactic treatment in view of the fact that spirochaetae pallida have been shown to be present.

Dr. W. L. Pyle, Philadelphia, emphasized the importance of proper dietetic treatment. Many observers believe tuberculosis plays an important role in these cases. He advises use of thyroid gland extract also and believes in mercury, but the patient's general health should be cared for as well.

Dr. John Green, St. Louis, had also noticed the signs mentioned by Dr. Gifford in the milk teeth. He suggested the co-operation of the ophthalmologist, internist and pediatricist in an attempt to clear up these cases.

Dr. Myles Standish, Boston, had seen cases with undoubted specific infection where the teeth were unaffected, so that this sign is not infallible. He also called attention to the increasing tendency to consider many of these cases tuberculous. Even in known specific cases proper hygiene is essential.

Dr. G. H. Price, Nashville, Tenn., agreed with the previous speakers that all such cases are not amenable to anti-syphilitic treatment. He has made use of protonuclein which contains iodothymin among other glandular elements. He uses the powder locally and in other inflammatory eye diseases as well as interstitial keratitis.

Dr. A. R. Baker, Cleveland, endorsed Dr. Risley's thyroid therapy. His experience with this treatment had been extensive owing to the frequent occurrence of goitre along the southern shore of Lake Erie. He advocated the use of mercury, but only after careful hygiene, diet, etc., with administration of the syrup of the iodide of iron, arsenic, etc. Enlargement of the knee often accompanies the ocular lesion.

Dr. A. E. Bulson, Ft. Wayne, thought that many of these cases were tuberculous in origin as he found that many of them responded to tubercular tests. He laid stress upon the importance of diet and proper hygiene with fresh air.

Dr. H. Gifford, Omaha, closing, advocated examination of children in institutions and their proper treatment where signs of tuberculosis or inherited syphilis are found. He gives arsenic with the mercury and has had better results than with mercury alone, especially where salicylates are also given. He referred to what he terms the sloped molar and showed that it was present in casts exhibited when notched incisors were absent. He had also seen the affection of the knee mentioned by Dr. Baker. The diet is certainly very important. Disc-like canines in the milk teeth are an important sign, though they by no means always mean syphilis.

REPORTS OF SOCIETIES.

AMERICAN OPHTHALMOLOGICAL SOCIETY.

Forty-fifth Annual Meeting.

The forty-fifth annual session of the American Ophthalmological Society was held at New London, Conn., July 14th and 15th, 1909. Dr. S. B. St. John, of Hartford, Conn., presided. The following papers were read and discussed:

Classification of Eye Diseases.

Dr. Alexander Duane, New York—The salient features of the proposed classification may be briefly stated as follows: 1. The different pathological conditions that may be present in the system as a whole or in any organ are distributed under the following heads, each denoted by a separate letter of the alphabet. A. Infectious diseases. B. Conditions due to animal parasites. C. Disorders of metabolism (gout, diabetes, etc.). D. Chronic intoxications. E. Injuries (including acute intoxications). F. Tumors. G. Congenital anomalies. H. Circulatory disturbances (anaemia, hyperaemia, oedema, hemorrhage, embolism, etc.). I. Inflammation. J. Atrophy, hypertrophy and degeneration. K. Necrosis and mortification. L. Acquired malformations (mechanical lesions). M. Disorders of function. N. Disorders unclassified or of uncertain natures.

2. Of these conditions, those with title letter A to G are regarded for purposes of classification as "general," and those with title letters H to N as "local." This is in accord with the principles of classification usually accepted as fundamental by statisticians: The demands of the statistician, which are often different from those of the clinician, require us to make a sharp distinction between general and local affections, and to place all manifestations of a general affection under that affection and not under the head of the organ affected. Thus, while to an ophthalmologist syphilitic keratitis and tuberculous iritis are primarily of interest as inflammations of the cornea and the iris, respectively; to the nosologist they are simply manifestations of syphilis and tuberculosis, under which they are to be invariably listed.

3. Each division, A to G, of general diseases comprises a great number of separate titles, indicated by numbers *following* the title letter. Thus, infectious diseases, A, include A-185, leprosy; A-150, tuberculosis, etc., diathetic diseases; C, include C-30, diabetes, etc.

4. On the other hand, when we come to local diseases, divi-

sions H to N, the organ affected is denoted by a figure *preceding* the title letter. These numbers are, like the title letters, invariably thus: 10 always denotes the conjunctiva; and as I always denotes inflammation, 10-I must necessarily denote conjunctivitis. The separate varieties of conjunctivitis can then be denoted by numbers or letters following the title letter. Thus, 10-I-1, would be catarrhal conjunctivitis.

5. In thus classifying local affections we take up each organ in succession from No. 1 to No. 169, and under each number take up also in succession the series of pathological conditions of that organ denoted by the letters H to N. Thus, in diseases of the eye, we consider first 10, diseases of the conjunctiva and under this 10-H, circulatory disorders, 10-I inflammations, etc., down to 10-N, miscellaneous conditions; then we can do the same for 11, diseases of the sclera; 12, diseases of the cornea, etc.

It will be seen that we make no headings, 10-A, 10-B, etc. This is necessarily so, because any condition that would be called an infectious disease of the conjunctiva (10-A) must, according to the primary principles of all classifications, be put not under 10 (diseases of the conjunctiva) at all, but under A (infectious diseases). The very fact that a number precedes the letter characterizes the disease as "local," and the fact that there is no number preceding the letter stamps the condition as general.

7. The advantages of this classification are consistency, uniformity and intelligibility. The numbers and letters have each a definite and invariable meaning, which the user of the system soon learns to appreciate. Furthermore, the system is capable of indefinite expansion and contraction, and interpolations can always be made anywhere and to any extent.

The Adverse Influence of Diabetes in Certain Operations of the Eye.

Dr. Charles Steadman Bull, New York.—The author stated that for a number of years he had been studying the varying conditions of diabetic patients, before as well as after operating, with a view to determining if possible what class of diabetic patients, if any, are not fit subjects for operative interference. He had not succeeded in making any exact discrimination of such patients, and is still very much in doubt when to operate, if at all, in the presence of undoubted diabetes. While it is a recognized fact that in general surgery that certain types of diabetics stand operations

badly, there are many whose general condition cannot clinically be distinguished from the others that do unusually well after operations. So far as it was possible to draw conclusions from his own observations, Dr. Bull offered the following: 1. We must carefully differentiate those diseases which are directly due to diabetes as a cause from those which may occur independently of the disease. 2. The abnormal products of metabolism—acetones, diacetic acid, and oxybutyric—seriously complicate the diagnosis, and must as far as possible be eliminated before any operation is undertaken. 3. Arterio-sclerosis plays an important role in the etiology of the disease and its complications. 4. The prognosis does not depend on the percentage of glucose in the urine, but on the degree of acid intoxication. 5. The possible connection between diabetes and tuberculosis needs more searching investigation before any positive opinion can be formulated.

DISCUSSION.

Dr. James Thorington, Philadelphia, reported a case in which detachment of the retina occurred in both eyes shortly after operations, which had been attended by loss of vitreous and iritis, where he believed the diabetic condition had been the disturbing factor.

Dr. H. F. Hansell, of Philadelphia, said that it had been his custom to keep diabetics under observation until the sugar percentage had been reduced to the lowest possible point before operating, and he believed that good results were favored by this method. He had not tried Dr. Bull's plan of analyzing the urine as to the acids present.

Dr. S. L. Ziegler, Philadelphia, said that he had attributed his good results in recent years to the fact that for a considerable period before operating he dosed the patient with arsenite of bromine. Since adopting this course of treatment he had operated upon a number of cataract cases in diabetics without any post-operative complications.

Dr. G. E. de Schweinitz, of Philadelphia, thought we should make a sharp distinction between diabetic cataract and cataract that happens to occur to a patient with sugar in the urine. He related an interesting clinical experience in operating upon four cataracts, two patients, where, in spite of a large quantity of sugar in the urine, the operation was successful, and yet the visual results were not satisfactory, because of widespread diabetic retinitis. It was startling to look in after the lenses had been taken out and see this widespread retinal lesion.

Dr. P. A. Callan, New York, said that up to this winter he had felt more or less sure if there was less than 3 per cent of sugar it was perfectly safe to remove a cataract, but that a recent experience had led him to change his mind. He thought it wise, when possible, to do a preliminary iridectomy, and at the end of six weeks remove the cataract.

Dr. Lucien Howe, of Buffalo, discussed the question of auto-intoxication and the relative value of analyzing the urine for diacetic acid or sugar, believing that it was much more important to ascertain the amounts of these acids present.

Dr. C. J. Kipp, Newark, said that he had never hesitated to operate on a cataract in the diabetic subject, and that his results have been as good as in other cases. Experience has taught him the wisdom of making an unusually large incision in these cases and to use very little pressure in expelling the lens, because any bruising of the tissues will cause complications in diabetics.

Dr. R. L. Randolph, Baltimore, said that his experience was exactly like that of Dr. Kipp. He once had the traditional fear, but experience had shown no difference in the behavior of the wound in these cases compared with the ordinary cataract operation.

Dr. Samuel Theobald, Baltimore, reported two cases of toxic amblyopia occurring in diabetes, and suggested that the latter disease might account for greater susceptibility to the poisonous effects of alcohol and tobacco.

Dr. W. H. Carmalt, New Haven, related a case in which a cataract operation was followed by sloughing of the cornea and death, although the patient had been specially prepared for the operation by a diet and treatment that eliminated all traces of sugar from the urine before the operation.

Summary of the Results Obtained and Features of Interest in 215 Consecutive Cataract Extractions.

Dr. Samuel Theobald, Baltimore, Md.: The general summary of these cases showed successes ($V=22/100$ to $20/13$), 178; successes (V not recorded), 15; total successes, 193. Partial successes ($V=6/200$ to $18/200$), 10; partial successes (V not recorded), 3. Vision not improved, though recovery from operation was smooth, 2. Failures from suppuration, 4. Failures from other causes, 3.

In all of the operations the section was made throughout in the sclero-corneal juncture, and in nearly all of them a small conjunctival flap was secured. A small iridectomy was made by a single

cut with the author's reverse curved iris scissors. Both eyes were closed with sterile pads of gauze and cotton, the eye operated upon being further protected by Murdoch's shield. The fellow eye was kept closed until the fourth day; the pad was not removed permanently from the eye operated upon until the seventh day. Beginning usually on the second a daily application of a four-grain solution of atropine was made to the eye operated upon. In one case adrenalin was used in conjunction with the cocaine solution, and the surgeon found considerable difficulty in performing iridectomy because of the wide mydriasis and collapse of the cornea. Dr. Theobald questioned whether the adrenalin caused the complications, and had never since employed it in cataract operations.

DISCUSSION.

Dr. David Webster, New York, said that he had used adrenalin with cocaine in order to promote anesthesia, but had concluded that in the majority of instances it occasioned secondary hemorrhages into the anterior chamber.

Dr. T. Y. Sutphen, Newark, referred to Dr. Theobald's use of the loop in two cases, and said that he had occasionally been compelled to use it, and felt that it was perfectly safe to do so.

Dr. Hiram Woods, Baltimore, asked for a further expression of opinion regarding the use of adrenalin. He had not observed that hemorrhage was more frequent after its use than without.

Dr. C. J. Kipp, Newark, replied that he used one drop of a 1-1000 adrenalin solution in every cataract extraction. He had seen these hemorrhages just as frequently in the days before adrenalin was discovered.

Dr. Alan Greenwood, Boston, remarked that he used adrenalin in all extractions, never stronger than 1-10,000, and that he had yet to see hemorrhage of the anterior chamber following its use.

Dr. P. A. Callan, New York, called attention to the advantage of getting the patient out of bed as soon as possible after cataract extractions; he never keeps them in bed more than twenty-four hours with combined extractions. He uses a 25 per cent solution of argyrol immediately after the operation and repeats that twice daily thereafter.

Dr. H. O. Reik, Baltimore, called attention to the practical utility of the concave iridectomy scissors devised by Dr. Theobald, stating that they favored the performance of a clean-cut iridectomy, and thus reduced the chances of iris entanglement in the wound.

The Choice of Operation for Iridotomy.

Dr. McCluney Radcliffe, Philadelphia: Eight cases were reported upon which this operation had been performed and drawings exhibited to show the conditions prior to and following operation. The V-shaped iridotomy advocated by Ziegler was performed in every instance, and after a consideration of the relative advantages of the Bowman, De Wecker and Ziegler operations, the author advocates the latter and recommends the Ziegler knife-needle as the proper instrument to be employed.

DISCUSSION.

Dr. P. A. Callan, New York, challenged the author's conclusions, and argued that it is impossible to cut such a membrane with any knife without traction upon its peripheral attachment. He earnestly advocated the use of De Wecker's scissors, stating that he had never seen any inflammatory reaction following their use, but that he had seen eyes lost from the effort to use knife needles upon such membranes.

Dr. H. F. Hansell, Philadelphia, advocated a different operation: With Hay's knife-needle he makes an incision in the membrane, inserts a blunt iris hook to draw up the several iris into the corneal wound and snips it off.

Dr. G. E. de Schweinitz, Philadelphia, took issue with Dr. Callan as to the advantages of the scissors and stated that since he had adopted the Ziegler operation his results had been so much better than ever before that he wanted to recommend it to those who had not given it a trial.

Dr. S. L. Ziegler, Philadelphia, explained the use of his knife needle, pointing out the necessity for making the most delicate pressure and using a long sawing motion. Owing to some complaints he has recently ordered these needles to be made in three different sizes.

Dr. S. B. St. John, Hartford, exhibited an instrument which he had picked up at Heidelberg in the nature of a punch for removing a portion of the membrane, and called attention to an old operation devised by Dr. Agnew where two iridotomy knives were inserted at opposite points on the cornea, the membrane cut and then a hook introduced to enlarge the slits.

Dr. Lucien Howe, Buffalo, stated that he had seen a similar punch-like instrument, but that while they would cut paper beautifully, he had been unable to punch a piece out of the membrane.

Dr. C. J. Kipp, Newark, referred to the Stevenson punch, which he had used and objected to only on the score of having to make a large incision.

Dr. P. A. Callan of New York said that he had used Stevenson's punch, and that while you have to make a large opening, they do the work beautifully.

The Treatment of the Eye When the Globe is Infected, With the Object of Preventing Panophthalmitis.

Dr. A. E. Davis, New York: Dr. Davis reported the case histories of four intraocular infections, all resulting in a cure after the injection of argyrol solution into the anterior chamber. After a discussion of the various forms of treatment suggested for such infections, with special reference to the newer serums and vaccines, the author concludes: 1. In the treatment of infective processes of the eye, especially those due to traumatism, perforating wounds, post-operative infection, etc., the well established methods of treatment, medicinal and surgical, must yet hold a prominent place in the attempt to relieve these desperate conditions. 2. Argyrol, in solutions from 2 per cent to 30 per cent, may be safely injected into the anterior chamber and seems to be of marked value in arresting virulently infective processes, such as hypopon keratitis, iritis, wound infections and post-operative infections.

DISCUSSION.

Dr. Alexander Duane, New York, reported a case of impending panophthalmitis arrested by repeated subcutaneous injections of a staphylococcus vaccine.

Dr. S. L. Ziegler, Philadelphia, called attention to the antiseptic value of formalin and stated that it is his custom to apply a 1 per cent solution of formalin directly to exposed suppurating areas, or, for intraocular use, to inject into the anterior chamber a $\frac{1}{4}$ per cent formalin solution to which cocaine had been added.

Third Series of Cases of Injuries from Foreign Bodies Examined by the Roentgen Rays, With Results of Operation.

Dr. W. M. Sweet, Philadelphia: This report makes a total of 702 cases of injury examined by Dr. Sweet, of which 571 were caused by particles of iron or steel, 49 by copper, brass or other non-magnetic metal, 50 by shot and 32 by glass, stone or coal. A detailed statistical table showing the exact location of the foreign body in each instance, the time elapsing

between injury and operation and the latest reports as to the results of these operations, was given. At the same time, Dr. Sweet exhibited an improved apparatus for locating foreign bodies in the eyeball by the Roentgen Rays, the instrument having been improved so that not only is the taking of the photograph facilitated by the nearest approach to accuracy of localization can be attained. After the exposures are made and the plate developed the determination of the situation of the foreign body is simply a question of reading from a key plate and transcribing these readings to the chart.

Physical Economics.

Dr. E. E. Holt, Portland, Maine: Dr. Holt exhibited a most elaborate set of tables, comprising mathematical formulæ for determining the earning ability of a person, and which might be used either to rate him or to obtain his economic value, or to ascertain damages to any part or parts of his body from injury or disease in a manner equitable to all concerned.

Spontaneous Rupture of the Eyeball. Report of a Case.

Dr. James W. Ingalls, Brooklyn, N. Y.: This was a case of chronic glaucoma which had been neglected and in which after a short period of severe pain the eye ruptured in the lower segment of the cornea. The author states that only five other cases of rupture of the eyeball have been reported in ophthalmic literature.

DISCUSSION.

Dr. George F. Libby, Denver, reported a case of spontaneous rupture which occurred in his practice, at first supposed to be due to glaucoma, but later discovered to have resulted from gumma.

Dr. F. H. Verhoeff, Boston, said that from the number of enucleated eyes that he had examined he would suppose it is not extremely uncommon for rupture to take place in old glaucomatous eyes, but that there is usually a preceding ulceration of the cornea.

Dr. W. K. Butler, Washington, stated that he had seen one case of rupture occurring in an old glaucomatous eye.

Dr. W. M. Sweet, Philadelphia, related the history of a similar spontaneous rupture in which there was no evidence of corneal ulceration.

Adenocarcinoma of the Pituitary Body.

Dr. W. T. Shoemaker, Philadelphia: This case was under observation for four and one-half years, and although cerebral

tumor was the probable diagnosis, it could not be confirmed until autopsy examination, when the pathological report made the diagnosis as above.

DISCUSSION.

Dr. Alexander Duane, New York, said that he had under observation a similar case in which radiographic picture shows a marked enlargement extending back from the chnoid process.

Dr. C. W. Cutler, New York, reported a similarly suspicious case, without symptoms of acromegaly, and exhibited the radiographic picture of the intracranial growth.

Report of a Case of Sarcoma and Bone Formation in an Atrophic Eye, With Presentation of Specimen.

Dr. Dunbar Roy, Atlanta, Ga.: The specimen was one of ossification of the choroid in an eye lost in infancy from purulent conjunctivitis.

Metastatic Carcinoma of the Orbit, With Report of a Case.

Dr. E. A. Shumway, Philadelphia: This was a rare case of involvement of the orbital tissues and ocular muscles by carcinoma as the result of metastasis, the primary lesion probably being a scirrus carcinoma of the breast.

DISCUSSION.

Dr. C. J. Kipp, Newark, said that in forty years of a busy practice he had only seen two cases of this character and thought it must be extremely rare.

Orbital Fibroma, With Unusual Clinical Manifestations.

Dr. G. Oram Ring, Philadelphia: The clinical history of this case was rather obscure and the patient had visited several clinics. The eye was pushed forward and by straining efforts the proptosis was increased. There was no enlargement of the thyroid, no rapid pulse and no diplopia in any part of the field. Marked optic neuritis. The eyeball had attained its prominence in two weeks and so remained for a year. As there was morning closure of the nostril a nasal sinusitis was suspected. Later the exophthalmos increased and within the upper, inner orbital margin a mass could be felt that was apparently not attached. Sinus disease having been eliminated and the orbital growth becoming more obvious, an exploratory operation was undertaken, but it became necessary to enucleate the eye in order to extract the tumor. Microscopic study of the growth showed it to be a fibromata.

DISCUSSION.

Dr. W. C. Posey, Philadelphia, discussed the difficulties in differentiating between primary orbital disease and that occasioned by sinusitis and the still greater difficulty, after excluding sinus disease, of determining whether the orbital growth is malignant or benign.

Dr. G. E. de Schweinitz, Philadelphia, alluded to another difficulty in that intracranial growths sometimes cause such an orbital oedema as to constitute a resistant mass at back of the orbit which feels like a new growth in that region.

Symmetrical Lymphomata of the Lachrymal and Salivary Glands (Mikulicz's Disease).

Dr. S. L. Ziegler, Philadelphia: Dr. Ziegler gave a resume of what is known of this affection and appended to his paper a complete bibliography. At the same time he reported two cases which have come under his observation.

A Case of Complete Albinism; Observations on the Changes in the Diameters of the Lens as Seen Through the Iris.

Dr. George F. Libby, Denver: Because of the thin irides and almost complete absence of uveal pigment an unique opportunity was afforded of making accurate measurements of the lens in moderate and extreme accommodation, and under full cycloplegia. With the eyes accommodating at 40 cm. the transverse diameter of the lens was 9.5 mm. Two hours after the instillation of 1/20 per cent eserin it was 9 mm. and two hours after the use of 1 per cent atropin it measured 10 mm.

A Case of Bilateral Macular Coloboma.

Dr. Howard F. Hansell, Philadelphia: This is only the eighth case recorded, according to Parsons. Central vision was abolished and peripheral vision could not be determined accurately. There was a moderate degree of internal squint and marked horizontal nystagmus. The boy, 8 years of age, had no other physical deformity. He was not the child of blood-related parents and there was no family history of ocular defects.

Haemorrhagic Central Chorioretinitis in Nonmyopic Eyes.

Dr. Charles J. Kipp, Newark: The author stated that he has seen this condition in persons of different ages, in persons in the best of health, in persons who admitted having had syphilis, and in both sexes. It has generally been unilateral. The symptom which brought the patients for consultation has

always been a more or less sudden impairment of vision. The external parts of the eye showed no disease and the media were in most cases perfectly clear. The retina was transparent everywhere except at the macula lutea, where hemorrhagic extravasations were observed. The choroid in the macular region was of a dark grayish or blackish color, while elsewhere it was of normal red. Subsequently the extravasation was absorbed and a grayish-white patch of new tissue formation with pigmented borders appeared. The case histories of six patients were given.

Angioid Streaks in the Retina, With the Report of a Case

Dr. W. Zentmayer, Philadelphia: After recovery from typhoid-pneumonia the patient complained of sudden dimness of vision of one eye. When examined four weeks later there was a system of ramifying pigmented streaks extending outward into the fundus from a similar band encircling the disc. They lay beneath the retinal vessels and tapered toward the periphery of the fundus. The color of the streaks in general appeared black. The author believed these streaks to be pigmented vessels, the vessels being either of congenital or inflammatory origin.

Concerning a form of Retinal Disease, With Extensive Exudation; Being a Clinical Contribution, With a Report of Two Cases.

Dr. G. E. de Schweinitz, Philadelphia: These case histories described lesions in the fundus of the eye which were chiefly characterized by an extensive mass of exudation. Lying beneath the retinal vessels there was a broad area of greenish-white exudate, somewhat knobbed in appearance, over which there were scattered numerous glistening masses, probably of cholesterin. The general elevation of the exudate was about 2 D. and there was some fringing of pigment about the margin. The condition is believed to occur particularly in association with some vascular disease.

DISCUSSION.

Dr. F. H. Verhoeff, Boston, exhibited the specimen of a similar condition in which the changes in the retina consist essentially of areas of hyaline degeneration, and stated that from this hyaline material lime salts and cholesterin crystals could be obtained. There were also evidences of general vascular degeneration.

Neuroretinitis in Chlorosis.

Dr. W. C. Posey, Philadelphia: The author calls attention to the rarity of structural eye changes in a condition so common as chlorosis, and reports a case in which both eyes were the seat of intense neuroretinitis; enormously distended veins, tortuosity of all the vessels and marked retinal oedema. Dr. Posey discussed the difficulty of differentiating the neuroretinitis of chlorosis from papilledema evoked by brain tumor, and considered at length the means by which such ocular changes could be brought about in this vascular affection. The theories of venous thrombosis, of nerve inflammation as the result of toxæmia, and of increased intracranial pressure were compared, but it appeared to him unlikely that increased intracranial pressure could have been a potent factor in the case which he reported since no other symptoms of cerebral irritation were present at any time during the course of the disease. He was inclined to attribute the changes in the eyefround primarily to the altered condition of the blood, but could not explain why such extensive and unusual changes should complicate an anaemia of so moderate a degree. Under treatment by Blaud's pills the retinal condition rapidly improved with correction of the anaemia.

DISCUSSION.

Dr. F. H. Verhoeff, Boston, pointed out the improbability of venous obstruction causing a neuroretinitis.

Dr. G. E. de Schweinitz, Philadelphia, said that he had reported a case very similar to that described by Dr. Posey, and that from a therapeutic standpoint it was very interesting that so-called optic neuritis, with oedema of the retina, often simulating a much more serious condition should be so markedly influenced by the old iron preparations, particularly the tincture of the chloride, the carbonate, etc. He considered Dr. Posey's communication a very timely one, because at the present time, with the appearance of optic neuritis and headache, the patient takes a serious risk if he happens into the hands of the general surgeon or neurologist who is apt to recommend trephining and decompression.

Dr. Alan Greenwood, Boston, reported a case in which a young factory girl came to him with a double optic neuritis, headache, reduced vision, and a diagnosis by the family physician of brain tumor. In view of the patient's anaemia she was treated with iron and strychnia and in six months the vision had returned to normal, the optic neuritis having completely disappeared.

At the business session of the society the following officers were elected for the ensuing year: President, Dr. Samuel Theobald, Baltimore; vice-president, Dr. Emil Gruening, New York; and secretary, Dr. W. M. Sweet, Philadelphia.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Meeting of Thursday, June 10, in London.

Mr. W. H. JESSOP, in the Chair.

Mr. Freeland Fergus showed a case operated upon for paralytic ptosis by his method of resection.

Mr. Arnold Lawson exhibited a case of double iridectomy for congenital glaucoma by the method of Lagrange, and Mr. Herbert Fisher, an unusual form of cataracts, bilateral, in a girl.

Mr. Jessop brought forward a case of bilateral ptosis with complete ophthalmoplegic externa.

Mr. Bergin showed a case with a unilateral swelling, and Mr. Blair one of pemphigus of the conjunctiva; while Mr. Herbert Bell exhibited a case of unusual elastic adhesion between iris and cornea, and Mr. Arnold Lawson one of congenital glaucoma treated by Lagrange's iridectomy. The latter was discussed by Dr. Weeks (of Philadelphia), Mr. Brooksbang James, Mr. Treacher Collins, Mr. Odillo Maher and Mr. F. R. Cross.

A Family with Congenital Displacement of the Lens.

Mr. P. H. Adams read two papers, the first on "A family with congenital displacement of lenses." The series consisted of a mother and seven out of her nine children who suffered from this condition, but no other instance could be found in the family. In three of the cases the lenses were displaced downwards, instead of the more usual displacement upwards, while in the eldest boy the dislocation was complete, thus leaving the pupil clear of the lens. The two members of the family who were unaffected had perfect normal eyes.

A Family with Congenital Opacities of Lenses.

In this family the great-grandfathers, grandmother, father and four of his children (out of five), as well as the father's sister, showed the peculiar opacities of the lens, known as steller cataract. Posteriorly there were from three to six primary rays and numerous secondary ones, while some of them showed Y-shaped markings on the anterior surface as well. The opacities slowly increased

throughout life, especially in the front of the lens, while the posterior markings were broader and less defined.

Retinal Disease, with Massive Exudation and Arterio-Venous Complication.

Messrs. A. Hill Griffith and A. W. Ormond read a paper entitled "A Case of Retinal Disease, with Massive Exudation and Arterio-Venous Communication." The patient was A. J., a female, aet. 31. The left eye had been removed for secondary glaucoma by Dr. Hill Griffith ten years ago. The fundus of the remaining eye showed very tortuous and distended retinal vessels, with varicosity of several of them, and a red blurred optic disc. In the extreme periphery of the fundus, deep to the retinal vessels, was a whitish mass, the limits of which could not be seen. Issuing from the anterior border was a large vein, and running to it an artery somewhat similar in size and color. The changes in the fundus were probably all due to vascular disease. The interest in the case was furthered by the fact that the other eye of the patient was removed for secondary glaucoma simulating an intra-ocular growth, and on examination it proved to be a case of extensive sub-retinal exudation, with retinal detachment and an old organizing hemorrhage, but no growth. The patient's sister also lost an eye from a similar cause, and the same condition was found on pathological examination.

Dr. George Mackey reported a very unusual appearance—an epithelial filament simulating a threadworm in the anterior chamber of the eye of a little girl, aet. 7. The child had always enjoyed good health, had no special illness, had never suffered from worms, and had not complained much about the eye. The filament had been first noticed when she was eight months old. No independent movement had ever been detected in it, but the parents were under the impression that it was slowly increasing in size. The eye was occasionally a little irritable, with a tendency to lachrymation and a trace of ciliary injection. The tension was normal, the media otherwise transparent, and the fundus healthy. The pupil responded to light, though less mobile below than above. At the periphery of the iris, close to the anterior chamber angle, between the 5 and 6 o'clock meridians, a buffy-gray filament, about a millimeter in diameter, emerged between the fibres of the iris, ascended in close relation to the posterior aspect of the cornea for three or four millimeters, then bent backwards towards the lower border of the pupil, and crossing the vertical meridian of the anterior cham-

lar, appeared to rest lightly in contact with the sphincter surface of the iris. Thereafter it bent downwards once more, following the plane of the iris nearly in the 1 o'clock meridian. The structure terminated in a slightly bulbous free extremity, which did not re-enter the iris, nor extend to the angle of the anterior chamber. The arched filament had thus a slight spiral twist from before backwards. The refraction of the eyes was about emmetropic. The vision of the right eye, 6/12, fairly, and the left, 8/6. The child was put under chloroform, and through an incision made at the corneo-scleral junction, a little to the nasal side of the filament, the foreign body was successfully removed, though breaking into two pieces on account of its brittle structure. From the pathological examination made by Dr. Shennan of Edinburgh and Mr. A. E. Shipley of Cambridge, no confirmation was obtained of the presence of a parasite. Microscopic sections showed that the filament was mainly composed of stratified epithelium, with a little loose connective tissue and some melanine pigment. Discussion was invited as to its probable origin, e. g., in a congenital displacement of part of the epithelium from the anterior surface of the iris, or a capsulo-pupillary vestige.

Mr. W. H. H. Jessop gave a report of the International Committee on the Unification of the Notation of Visual Acuity and of the Meridians of Astigmatism. The committee, after consideration, came to the following conclusions: (1) That the meridians of astigmatism should be measured and represented as the observer looked at the patient. (2) That the axes should be measured and represented in the lower semi-circle of the trial frame. The numbering of the axes should start from the middle line of the face in each eye, and proceed downwards and temporalwards. The zero would therefore lie at the nasal end of the semi-circle and 180° at the temporal end; 90° would be below and midway between these points. The committee also agreed that for international test type, numbers should be used. Landolt's ring was also thought to be a suitable object. The unit of measure was an angle of 1 minute, and the figures were to be constructed on this unit. The types were to be constructed as regards size on arithmetical progression, and the standard distance at which they were to be seen should be 5 metres. The source of light was to be diffuse daylight, if possible, opposite the types, and not laterally.

C. DEVEREUX MARSHALL, M. D.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

An ordinary meeting of the society was held at the rooms of the medical society on Friday, July 9, Mr. Priestly Smith occupying the chair.

Dr. F. W. Edridge-Green showed a spectroscope for testing color perception. It is constructed like an ordinary spectroscope, except that there is a telescope and collimator both fixed, and in the focus of the eyepiece there were two shutters. Those cover the whole of the spectrum, and by means of them the operator can isolate any portion of the spectrum, in order to show the size of the patch which seems to be monochromatic to any person. He said that whereas it used to take him three days to examine a case by the old instrument, he could now examine one in half an hour, because attached to each shutter is a drum marked in wave lengths, graduated to the fourth degree, which was very fine. That enables the size of the patch to be determined without any calculation. The spectroscope could be used for seeing the exact termination of the spectrum, and how far the ends extended. Mr. N. Bishop Harman showed a chart illustrating some new cataract pedigrees. The cases illustrated the truth of Mr. Treacher Collins' contention that the cataract was a defect in the lens secretion which went to make the capsule. The patient had plaques on the back part, behind the nucleus, and including the posterior part of the lens. In one girl the cataract extended so as to include the nucleus, while in a further case it projected forward like a piece of coral through the lens, so that it seemed there was lens matter bulging through. At first he thought it was that, and that it had been needled and afterwards got hard and sclerosed.

A Preliminary Note on the Treatment of Eye Diseases by Radium.

A paper by Mr. Arnold Lawson and Dr. Mackenzie Davidson. Mr. Lawson said the cases had been selected from the out-patient clinique of Moorfields Hospital, and were selected as instances of maladies which usually proved obstinate or only improved slowly under the ordinary forms of treatment, or else were of an active and virulent nature and so required drastic measures. Only seventeen cases had so far been tried, but in every case the result of exposure to radium had been very encouraging. Most of the cases were corneal ulcerations, four were non-ulcerative lesions, and one was episcleritis. After one application of five minutes to a

hypopyon there was distinct benefit. For instance, a man aet. 35, gave a history of injury to the right eye. There was deep ulceration and a gray infiltrated area of 4 mm. diameter, with a large hypopyon. Twenty-nine milligrams of radium were applied for five minutes, and five days later the injection was subsiding, and the hypopyon had disappeared. Two days after a second application of three minutes the man was discharged from the hospital, the eye being not quite white, but, for all practical purposes, well. Other cases also did very well from the treatment. In all cases the only other measures were boracic lotion and atropine where required. Some punctate erosions were also similarly treated, and gave equally encouraging results, as did also cases of old-standing trachomatous pannus, except in one case, in which there was increased vascularity after the treatment. The dosage of radium was an important point, and the small dose of 5 milligrams seemed to act as quickly as did a much larger quantity. In one case the pain after the application endured for three days, but in the others the longest time was twenty hours. Dr. Mackenzie Davidson explained that the paper was a tentative one. The radium was applied in sealed glass tubes, the glass cutting off the Alpha rays, so that the Beta and Gamma rays only passed through to the lesion. Mr. Ernest Clarke and Dr. Hewkley discussed the paper.

The chairman then, in a graceful tribute, presented to Mr. Edward Nettleship the Nettleship medal for his work in ophthalmology, and Mr. Nettleship replied, paying a high compliment to the many coadjutors who had helped him to complete the pedigrees on which he had been working.

From C. Devereux Marshall, F. R. C. S., 112 Harley St., London W.

THE OXFORD OPHTHALMOLOGICAL CONGRESS.

For several years a number of men interested in ophthalmology have foregathered in the pleasant month of July in the historic city of Oxford, which lies about sixty miles almost due west of London, England. The meetings, which have been organized by Mr. Robert W. Doyne, who is the Reader in Ophthalmology in the University of Oxford, originated from the post-graduate classes in ophthalmology arranged by the University. They have hitherto been of a somewhat informal nature, since no reports have been officially issued, and discussions have not been encouraged. The underlying idea has on the contrary been to exhibit new instru-

ments and appliances, to witness novel operations, and to discuss informally new methods of treatment or of diagnosis that are still, as it were, on trial. From these several points of view, the meetings have been an unqualified success.

Keble College, one of the twenty-two constituent Colleges of the University of Oxford, a comparatively modern but very comfortable and well appointed building, has always been the headquarters of those who attend the Congress. It is situated amid delightful surroundings, about a mile from the Great Western Railway station. By the courtesy of the Warden, Dr. W. Lock, members of the Congress are provided with board and lodging on payment of a purely nominal sum, namely, 7s. 6d. per diem. They take their meals together in the College Hall, a lofty and imposing, albeit rather sombre, room, hung round with portraits of College worthies. This arrangement is rendered possible by the fact that the Congress assembles during the University recess.

The scientific meetings are held in the physiological and anatomical department belonging to the University generously placed at the disposal of the Congress. They lie scarcely a stone's throw from Keble College. Operations are performed at the famous Radcliffe Infirmary, the operating theatre of which—recently built and admirably arranged—is well-suited to the purpose. The Radcliffe Infirmary is but a short distance from Keble College. Cases of interest (often arranged in series) are on view at the Oxford Eye Hospital, the grounds of which adjoin those of the Radcliffe Infirmary. The institution contains upwards of forty beds, and has a very large out-patient department attached to it. The members of the staff include among their number Mr. Robert W. Doyle and Mr. P. A. Adams.

This year the meeting was held on July 15th and 16th, and, as usual, was attended by a large number of ophthalmic surgeons, both British and foreign. Representatives of the United States included Dr. Arnold Knapp, Dr. Wendell Reber, and Dr. Vail. Britain beyond seas had sent Dr. Gordon M. Byers and Dr. R. A. Reeve. Germany was worthily represented by Professors Greeff and Deutschmann, and France by Professors Motais, Remy. Switzerland had sent Professor Marc Dufour, of Lausanne, and Spain, Dr. Castello, of Barcelona.

Amongst the addresses given may be mentioned the following:

1. Dr. Risien Russell: "On the significance of Optic Neuritis."

2. Mr. A. Lawson and Dr. M. Davidson: "The use of Radium in Eye Disease."
3. Professor Greeff: "On the Aetiology of Trachoma."
4. Dr. A. Hill Griffith: "On some Lacrymal Gland cases."
5. Professor Deutschmann: (a) "On treatment by yeast-Serum." (b) "On the surgical treatment of cases of detached retina."
6. Professor Dufour: (a) "On cases of difficult Iridectomy." (b) "On the cause of Milton's blindness."

One of the most interesting features of the Congress were the operations. They included a demonstration by Colonel H. Herbert of his new wedge operation for chronic glaucoma; Dr. Motais' operation for ptosis by the substitution of a flap taken from the superior rectus muscle; Professor Deutschmann's bisection for detached retina; Professor Dufour's operation of iridectomy (modified Gayet); and, lastly, Dr. Freeland Fergus' operation of trephining the sclera for glaucoma, and of advancement for strabismus.

New instruments, appliances, and methods were demonstrated, among others, by P. H. Adams, R. W. Doyne, Rayner D. Batten, N. B. Harman, J. Jameson Evans, Freeland Fergus, E. T. Collins, A. W. Ormand, Arnold Knapp, J. H. Tomlinson, and Professor Arthur Thomson. The enthusiastic and indefatigable Dr. Remy, of Dijon, was well to the fore with his diploscope. Dr. Edridge-Green gave a demonstration of several new phenomena connected with color vision.

One of the interesting exhibits was by Dr. Thompson Henderson, of Nottingham, who showed a series of microscopical specimens of the iris after iridectomy, which went to show that cicatricial changes did not occur after that operation. Mr. Angus MacNab had beautiful slides to illustrate the bacteriology of ulceration of the cornea.

There was no lack of hospitality at Oxford. Professor Osler gave a garden party on the 15th at Norham Gardens, and members were entertained every evening as the guests of Mr. Doyne, in the junior Common Room, at Keble College. Indeed, there was scarcely time to take a look at the historic Colleges for which Oxford is famed the world over. It was impossible to help recalling Charles Lamb's famous essay on "Oxford in the vacation." "The halls deserted, and with open doors inviting one to slip in unperceived, and pay a devoir to some Founder, or noble or royal

Benefactress (that should have been ours), whose portrait seems to smile upon their over-looked beadsman, and to adopt me for their own. Then to take a peep in by the way at the butteries, and sculleries, redolent of antique hospitality: the immense caves of kitchens, kitchen fireplaces, cordial recesses; ovens whose first pies were baked four centuries ago; and spits which might have cooked for Chaucer."

The 1909 meeting will ever be memorable, since it was determined (upon the motion of Mr. Sydney Stephenson) to place the conference upon a permanent footing under the title of the "Oxford Ophthalmological Congress." At a meeting in Keble College of the 15th a committee was appointed to make the necessary arrangements, and to report in due course. The committee consisted of Sir Anderson Critchett, Bart., Sir Henry Swanzy, Dr. George Mackay, Dr. A. Hill Griffith, Professor Osler, Dr. Wendell Reber, Professor Deutschmann, Professor Dufour, Professor Greef, and Dr. A. Darier, together with Mr. Robert W. Doyne, as Chairman, and Mr. Sydney Stephenson, as Secretary. The cosmopolitan character of the committee is a guarantee that the congress will be conducted upon broad lines.

The congress was brought to an end by a steamer excursion on the river Thames from Oxford to Reading, where visitors took train for London and elsewhere.

SYDNEY STEPHENSON.

Notes and News

Dr. G. A. Stirling Ryerson, Toronto, Canada, has gone to Europe.

Dr. Geo. E. deSchweinitz, of Philadelphia, went abroad for the summer.

Drs. Koellner and Leber, assistants in the University Eye Clinic in Berlin, have qualified in ophthalmology.

Prof. Theodor Ewetzky, Director of the University Eye Clinic in Dorpat, died April 20, 1909.

The Physicians Association of Vienna has appointed Prof. Wm. Uthhoff of Breslau, a corresponding member.

Dr. and Mrs. P. A. Jordan of San Jose, Cal., returned recently from a six months trip abroad.

Drs. Walter Lohlein and Heinrich Gebb have qualified in ophthalmology in Greifswald, Germany.

Dr. Inglis Pollock has been appointed assistant surgeon on the staff of the Glasgow Eye Infirmary.

Dr. C. A. Veasey of Spokane, Wash., was recently elected Associate Editor of *Northwestern Medicine*, the official organ of the states of Washington, Idaho and Oregon.

A free dispensary for the care of eye, ear, nose and throat cases has been opened in Greenville, North Carolina, by the Salvation Army.

Dr. Hilliard Wood has been appointed eye, ear, nose and throat surgeon on the faculty of the recently merged medical departments of the Universities of Nashville and of Tennessee.

The title of Professor has been conferred on Dr. V. Pflugk of Dresden, Privatdozent and Director of the Eye Department of the Physiological Institute of the Royal Veterinary College.

At the end of this semester Professor Schmidt-Rimpler, the well known director of the eye clinic at Halle, will resign his position. His successor is Prof. E. V. Hippel of Heidelberg.

The committee on ophthalmia neonatorum of the Massachusetts Medical Society has issued a pamphlet for the instruction of physicians and nurses, etc., in the best methods of prevention and treatment of this infection. The Massachusetts laws bearing on this subject are quoted in an appendix to the pamphlet.

Dr. John R. Winslow, of Baltimore, has resigned from the staff of the Presbyterian Eye, Ear and Throat Hospital, and has accepted an appointment to the staff of the Baltimore Eye, Ear and Throat Charity Hospital. Dr. Leo Goldbach will succeed Dr. Winslow on the staff of the former hospital.

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

VOL. XVIII CHICAGO, OCTOBER, 1909 No. 10, NEW SERIES

THIRD SERIES OF CASES OF INJURIES FROM FOREIGN BODIES EXAMINED BY THE ROENTGEN RAYS, WITH RESULTS OF OPERATION.*

WILLIAM M. SWEET, M. D.,
PHILADELPHIA.

At a meeting of this society in 1901 I reported a series of 102 cases of injury to the eye from foreign bodies in which the Roentgen rays had been used for diagnosis, and gave the results of operation in the 65 cases in which a foreign body was located in the eyeball or surrounding structures. A second series of 318 cases, in 173 of which a foreign body was shown by the x-rays, was published in 1906. In the present communication are reported 282 cases of ocular injury, in 157 of which the substance was found to be lodged in the eyeball or orbit. For the purpose of comparison, the 702 cases are embraced in the following statement:

	First series.	Second series.	Present series.
In the eyelid.....	1	2	0
In the lens.....	3	14	16
In the iris or posterior chamber.....	1	4	4
In the ciliary region.....	24	27	12
Near the equator.....	21	69	52
Posterior part of eyeball.....	12	46	48
In the orbit.....	3	11	25
No body shown by x-rays.....	37	145	125
	102	318	282

In the above subdivision of the vitreous chamber, the "ciliary region" includes all cases in which the body was situated in or close to the ciliary body, the equatorial region, all bodies situated

*Presented at the forty-fifth annual meeting of the American Ophthalmological Society, July, 1909.

at the equator or in an area of 3 mm. in front or 3 mm. behind it, while the third division includes all cases in which the body was in the posterior part of the globe. Of the total 702 cases of injury, 571 were caused by particles of iron or steel, 49 by copper, brass, or other non-magnetic metal, 50 by shot, and 32 by glass, stone, or coal. In the 42 instances in which the foreign body was situated in the eyelid or orbit, the eyeball on the corresponding side was injured.

The right eye was injured in 308 cases and the left in 390, and both eyes in 4 cases. The greater frequency of injury of the left eye is explained partly by the position taken by righthanded workmen in using tools in hammering or chipping metal, by which the left eye is more exposed to flying particles, and partly by the fact that the nose affords some protection to the right eye from missiles coming from the left side.

The following figures give the ultimate result in the 65 cases in the first series and the 173 in the second series in which a foreign body was located in the eyeball or surrounding tissues, with details of the 157 cases in the present group. Some changes have been made in the first two groups from the previously published figures, based upon later information:

	First series.	Second series.	Present series.
<i>Eyeballs enucleated:</i>			
Extraction not attempted or failed.....	14	23	19
Extraction successful—enucleation later....	10	28	39
<i>Eyeballs saved:</i>			
No operation attempted.....	7	11	4
Extraction failed.....	2	4	9
Bodies in eyelid or orbit.....	4	9	17
Extraction successful.....			
Vision 6/12 or better.....	7	20	17
Vision 6/15 to 6/60.....	4	13	11
Fingers or hand movements, etc.....	0	7	12
Good light projection.....	9	27	15
Light perception	6	21	9
No light perception—eye normal size....	0	6	2
Eyeballs shrunken.....	2	4	3
No bodies shown by x-rays.....	37	145	125
Total	102	318	282

In the third group, extraction was not attempted or failed, but the eye was not removed, in 13 cases—3 of copper, 1 of brass, 1 of

lead, 7 in which the steel had remained in the eyeball for periods between three months and nine years, and 1 refused operation.

In the 19 instances in which enucleation followed failure to secure the foreign body or in which no operation was performed, two were gunshot injuries, in which shot was situated within the globe, two in which rapidly developing panophthalmitis made immediate enucleation imperative, six were injuries by copper or other non-magnetic metal, and nine were cases in which the steel was imbedded in exudation.

Most of the patients examined were referred to me for x-ray localization, and I am under obligations to the surgeons who treated the cases for aid in determining the ultimate result as to vision. In instances in which the patient did not return to the hospitals after extraction for subsequent examination and treatment, record of the condition of the eye and the vision was secured by visits to them at their homes or places of labor in this city, or by correspondence and examination by physicians in the cities in which the patients lived. In some cases it has been impossible to locate individuals, and the period between operation and last examination has not been so long as could be wished.

EYEBALLS SAVED.—In the first series extraction was successful and the eyeballs saved in 28 cases, 7 with vision better than 6/12 and 21 with vision less than 6/12. In the second series the steel was successfully removed in 98 cases, 20 with vision better than 6/12 and 78 with less than 6/12. In the present series extraction succeeded in 69 cases, 17 with vision better than 6/12 and 52 with less than 6/12. In many of the cases with vision poorer than 6/12 sight could be distinctly improved by the removal of the existing cataract or capsular membrane. In the last series of 52 cases with less than 6/12, cataract was present in 30, the removal of which would have given much better sight than is shown by the tabular statements.

The details of the present series of cases, which includes those in which the foreign body was removed, those in which extraction failed or was not attempted (excluding eyeballs enucleated), and those in which the body was in the orbit, are given in Table I.

TABLE I.—EYEBALLS SAVED.

Case.	Surgeon.	Eye.	Situation of Wound.	Time between Injury and Extraction.	Time between Operation and Last Examination.	Vision.	Remarks.
LENS OR IRIS:							
538	Van Pelt.	L.	C.	3 days	1 yr.	6/9	Lens curreted.
563	Risley.	L.	C.	2 yrs.	18 mo.	Hand movements.	Capsular cataract.
571	Sweet.	L.	C.	3 wks.	15 mos.	6/9	Capsular cataract.
599	Pontius.	L.	C.	5 wks.	6 mos.	6/9	Lens curreted.
604	Sweet.	L.	C.	4 yrs.	1 yr.	6/6	In iris. Lens clear.
605	Radcliffe	R.	C.	3 yrs.	6 mos.	6/5	Lens curreted. V-shaped capsulotomy.
608	Oliver.	R.	C.	3 days	13 mos.	6/12	Lens curreted.
609	Sweet.	R.	C.	5 days	1 yr.	6/9	Lens curreted.
626	Van Pelt.	L.	C.	3 mos	1 yr.	6/12	Lens curreted.
627	Oliver.	L.	C.	3 days	1 yr.	6/12	Lens curreted.
632c	Oliver.	R.	C.	3 days	1 yr.	Good L. Proj.	Cataract. Extraction not attempted
640	Ziegler.	R.	C.	18 mos.	3 mos.	Good L. Proj.	Cataract.
645	Sweet.	R.	C.	8 mos.	1 yr.	6/5	After injury sight good for 8 mos.
655c	Pontius.	L.	C.	6 days	1 yr.	6/12	Lens curreted.
658	Ziegler.	L.	C.	4 days	10 mos.	6/12	Lens curreted.
680	Dewey.	L.	C.	7 mos.	6 mos.	5/15	Lens curreted. Cap. cat
684	Van Pelt.	L.	C.	2 yrs.	..	L. P.	Extraction failed. cat.
687	Oliver.	L.	C.	11 days	8 mos.	1/100	Capsular cataract.
VITREOUS REGION:							
502	Turnbull.	L.	S.	3 days	6 mos.	Hand movements.	Membrane in vitreous.
527	Posey.	R.	C.	6 days	1 mo.	Light proj.	Vit. opacities.
545	Fisher.	L.	C.	9 days	10 mos.	Light proj.	Cataract.
580c	Ziegler.	R.	C.	1 yr.	14 mos.	6/6	Removed by forceps, with vitreous illuminated by head mirror
629	Radcliffe.	R.	C.	6 mos	1 yr.	6/18	Lens curreted. Cap. cat.
633	Sweet.	R.	L.	5 days	10 mos.	Fingers 2 ft.	Cataract. Good L. P.
631c	Risley.	L.	C.	1 yr.	..	Imp. L. P.	Ext. not attempted.
686	Risley.	L.	L.	1 yr.	3 mos.	Imp' L. P.	Globe shrunken.
EQUATOR:							
423	Ziegler.	R.	L.	5 days	2 yrs	6/60	Cataract.
434	Zentmayer.	R.	C.	3 mos.	..	Light proj.	Brass. Extraction not attempted. Cataract.
435	Sweet.	L.	C.	2 mos.	2 yrs.	6/9	Eye quiet 3 yrs. later.
445	Ziegler.	L.	C.	5 days	2 mos.	Light proj.	After capsulotomy.
460	Hansell.	L.	C.	3 days	6 mos.	6/18	Cataract.
466	Posey.	L.	C.	2 yrs.	2½ yrs.	Fair L. proj.	Capsular cataract.
472	Posey.	R.	L.	2 days	10 mos.	5/200	Some exud. in vitreous. Eye diverg. 20°
495	McClure.	R.	C.	2 days	2 yrs.	Imp. L. P.	Vitreous opac.
501	Risley.	L.	C.	3 days	3 mos	Imp. L. P.	Membr. Hyalitis.
512	Ziegler.	L.	S.	7 mos.	2 mos.	Imp. L. P.	Pupil irregular Membrane in vitreous.
530c	Sweet.	R.	L.	18 mos.	10 mos.	Imp. L. P.	Siderosis. Vit. membr.
534	McClure.	R.	C.	3 days	10 mos.	Good L. Proj.	Extraction failed.
537	Sweet.	L.	L.	7 days	1 yr.	6/30	Cataract.
547	Hansell	R.	S.	4 hrs	20 mos	10/100	Vitreous opacities.
548	Zentmayer.	R.	L.	1 day	14 mos.	Imp. L. P.	Atrophic optic nerve
549	Sweet.	R.	C.	3 mos.	..	Light proj	Membr. hyalitis.
551	Radcliffe.	R.	C.	10 mos.	8 mos.	6/60	Extraction failed.
555	Ziegler.	R.	L.	3 days	..	6/60	Capsular cataract.
557	Sweet.	R.	C.	9 days	10 days	6/12	Extraction failed.
564	Ziegler	R.	C.	5 days	18 mos.	Fingers 3 ft.	Cap. cataract.
577	Risley.	R.	C.	4 days	6 mos.	Imp. L. P.	Capsular cataract.

C = Copper.

TABLE I.—EYEBALLS SAVED.—(Continued.)

Case.	Surgeon.	Eye.	Situation of Wound.	Time between Injury and Extraction.	Time between Operation and Last Examination	Vision.	Remarks.
EQUATOR—Continued.							
593	Radcliffe.	L.	C.	1 wk.	7 days	Good L. Proj.	Cataract.
597	Leopold.	R.	C.	1 day	1 yr.	6/12	Lens curretted.
601	Fisher.	R.	C.	5 mos.	1 yr.	Hand movements.	Lens removed. Cap. cataract.
613	Risley.	L.	C.	2 yrs.	..	Poor L. Proj.	Extraction failed. Mass in vitreous.
647	Risley.	L.	S.	1 day	1 yr.	6/12	Cataract.
648	Sweet.	R.	C.	2 days	4 mos.	Hand movements.	Lens curretted.
652	Dewey.	R.	C.	15 mos.	..	Imp. L. P.	Extraction failed. Refused enucleation.
657	Pontius.	R.	C.	7 mos.	5 mos.	Light proj.	Cataract.
672	Chance.	L.	C.	1½ yrs.	..	..	Extraction failed. Lens curretted. V—6/12.
676	Sweet.	R.	L.	1 day	9 mos.	Good L. Proj.	Cataract.
677	Van Pelt.	L.	C.	3 days	8 mos.	Good L. Proj.	Cataract.
679	Sweet.	R.	C.	1 wk.	2 mos.	5/22	Partial cataract.
POSTERIOR PART OF EYE:							
438	Taylor.	R.	S.	8 yrs.	..	6/12	Extraction failed
450	Dewey.	L.	C.	4 days	2 yrs.	Good L. Proj.	Cataract.
462	Zentmayer.	R.	C.	3 days	3 mos.	Imp. L. P.	Globe slightly atroph.
463	Sweet.	R.	C.	20 days	2 yrs.	6/60	Choroidal absorption.
464	Van Pelt.	R.	L.	3 days	14 mos.	Poor L. Proj.	Exudation in vit.
469	Zentmayer.	L.	S.	1 day	2½ yrs.	Imp. L. P.	Exudation in vit.
476	Harbridge.	L.	C.	2 mos.	2½ yrs.	Fingers 3 ft.	Capsular cataract.
524	Sweet.	R.	C.	2 days	2 yrs.	No sight.	Ball slightly atrophic
532	Radcliffe.	R.	C.	4 days	1 yr.	Imp. L. P.	Ball slightly atrophic.
546	Sweet.	R.	C.	1 day	6 mos.	Shadows 3 ft	Cataract.
554	Oliver.	L.	C.	1-day..	6 mos.—	Fingers-1 ft.—	Cataract.
587	Ziegler.	L.	C.	2 days	2 mos.	Good L. Proj.	Cataract.
590	Posey.	L.	C.	4 days	3 mos.	Good L. Proj.	Cataract.
595	Sweet.	R.	S.	17 days	..	Imp. L. P.	Refused extraction.
600	Hansell.	L.	C.	10 days	1 yr.	Light Proj.	Cataract.
620	Ziegler.	R.	C.	9 yrs.	..	..	Extraction failed.
623	Zentmayer.	R.	S.	7 days	2 mos.	Fingers 2 ft.	Opacities in vitreous.
646	Risley.	R.	L.	3 days	1 yr.	20/70	Vision—20/40.
669	Sweet.	L.	S.	3 days	3 mos.	Light proj	Cataract.
673	Oliver.	R.	C.	3 days	8 mos	5/15	Lens curretted.
675	Sweet	L.	C.	2 days	6 mos.	Imp. L. P.	T-2.
681	Gibson, R.D.	R.	C.	1½ yrs.	7 mos.	No sight.	Globe of normal size
692	Risley.	L.	C.	2 wks.	1 mo	Good L. Proj.	Cataract.
IN ORBIT:							
424	Harlan.	R.	C.	20 days	3 mos.	L. Percep	Cataract.
428a	Van Pelt.	R.	S.	3 days	6 mos.	L. Percep.	Vitreous membrane.
477	Radcliffe.	L.	C.	3 days	1 yr.	Light Proj.	Cataract.
481a	Sweet.	L.	S.	2 wks	2 yrs.	Imp. L. P.	Cataract.
489a	Posey.	L.	S.	2 mos.	1 yr.	6/12	..
491a	Sweet.	L.	S.	3 mos.	13 mos.	Light proj.	Vit. degen.
496a	Oliver.	L.	S.	1 mo.	5 mos.	Light proj.	Membrane in vitreous
542	Sweet.	L.	L.	6 hrs.	2 yrs.	6/6	..
589	Sweet.	R.	S.	5 days	18 mos.	6/9	..
698a	Hansell.	L.	S.	4 days	1 yr.	6/60	Membrane in vitreous
606a	Van Pelt.	R.	S.	3 days	6 mos.	6/30	Retinal degeneration.
616	Sweet.	L.	S.	3 wks.	1 yr.	Moving objects.	Exudate in vitreous.
630	Cramer.	L.	L.	3 days	1 yr.	6/45	Capsular cataract.
636	Pontius.	R.	C.	2 days	6 mos.	6/12	Corneal macula.
656	Oliver.	R.	C.	3 days	1 yr.	Good L. Proj.	Nasal side of orbit.
685	Pontius.	R.	C.	5 days	6 mos.	Good L. Proj.	Lens curretted. Cap. cataract.
695	Ziegler.	R.	S.	3 days	5 mos.	Good L. Proj.	Cataract.
							Exudate in vitreous.

EYEBALLS LOST.—Of the total of 157 eyes of the present series in which a foreign body was situated in the eyeball or orbit, enucleation was required in 58. In 39 the injury was from iron and steel, in nine from copper or other non-magnetic metal, nine from shot, and one from coal. The cases which caused the removal of the eyeballs are tabulated below, compared with the cases in the previous reports:

	First series.	Second series.	Third series.
Extraction not attempted or failed.....	14	23	19
Iridocyclitis	5	14	15
Panophthalmitis	1	8	14
Shrunk or lacerated eyeball.....	2	5	7
Symp. irritation.....	0	0	2
Recurring hem. anterior chamber.....	2	1	1
	—	—	—
Total	24	51	58

Two causes stand out prominently as contributing in a large measure to the loss of eyes injured by foreign bodies: first, the period elapsing between the injury and the removal of the body; and, second, the size of the metal entering the globe. A few days may suffice for a firm exudate to surround a body imbedded in the retina or choroid, and even if the extraction is successful the amount of damage that follows the drag of the magnet upon the tissues in disengaging the metal cannot be estimated. I believe the importance of prompt diagnosis of the lodgment of a foreign body in the eyeball and its immediate removal are being more fully recognized even by the workingmen in the larger industrial establishments, and they seek experienced advice rather than accept the opinion of the local physician, who is too often disposed to say that he thinks there is nothing in the eye. It is unfortunate, however, that a certain proportion of injured eyes will be lost from panophthalmitis or iridocyclitis, even though the patient is promptly seen and the steel at once removed.

The details of the 58 cases included in the present series in which enucleation was required are shown below:

TABLE II.—EYEBALLS LOST.

Case.	Surgeon	Eye.	Time Between Injury and Extraction.	Situation of Wound.	Between Time Extraction and Enucleation.	Size of Body mm.	Cause of Enucleation.	Remarks.
LENS:								
497	Van Pelt	L.	7 days	C.	2 wks.	8x4	Panophthalmitis.	Through posterior capsule. Evidence of infection at time of extraction.
573c	Sweet.	L.	2 wks.	C.	3 days	1x1	Panophthalmitis.	Copper imbedded in post capsule.
CILIARY REGION:								
422	Posey.	L.	1 yr.	S.	..	1x½	Extraction failed.	Body imbedded in lymph.
596	Radcliffe.	R.	2 wks.	C.	3 days	6x4	Irido-cyclitis.	Coal, not shown by x-rays.
609c	Van Pelt.	L.	1 wk.	C.	1 wk.	1x1	Irido-cyclitis.	Attempt to extract with forceps failed.
638	Behrens.	L.	2 days	C.	..	2x1	Panophthalmitis.	Extraction not attempted. Eye infected.
EQUATOR:								
421	Sweet.	R.	10 hrs.	S.	6 days	12x4	Irido-cyclitis.	Eye collapsed after extraction. Refused enucleation until later.
467	Fisher.	R.	3 days	L.	15 days	7x3	Irido-cyclitis.	Immense coagulated mass in centre of vitreous.
475	Hansell.	L.	1 wk.	C.	1 wk.	4x1	Panophthalmitis.	Purulent masses removed with body.
480s	Risley.	L.	1 wk.	S.	..	Shot.	Irido-cyclitis.	Extraction not attempted.
482s	Zentmayer.	R.	2 days	S.	..	Shot.	Irido-cyclitis.	Extraction not attempted.
525	Risley.	R.	1 wk.	C.	2 wks.	4x2	Rec. hem. ant. chamber.	Severe pain, unrelieved by medicine. Yellowish mass found in vitreous.
528	Sweet.	R.	2 days	C.	3 days	4x1	Panophthalmitis.	Death 2 days later from septic meningitis.
539	Radcliffe.	R.	1 wk.	S.	2 wks.	2x1	Irido-cyclitis.	Evidence of infection at time of extraction.
544	Sweet.	L.	4 days	C.	3 mos.	2x ½	Irido-cyclitis.	Ragged wound at limbus.
560	Radcliffe.	L.	1 day	L.	4 days	6x5	Irido-cyclitis.	
562	Radcliffe.	R.	1 day	C.	3 days	4x2	Panophthalmitis.	
568	Posey.	R.	3 days	S.	4 mos.	6x3	Shrunken ball.	
598c	Ziegler.	L.	2 days	S.	..	7x6	Collapsed ball.	Lacerated wound of sclera, with protruding vitreous.
641	Schwenk.	R.	3 days	C.	2 wks.	2x ½	Irido-cyclitis.	Not shown by x-rays.
665	Fisher.	L.	1 day	C.	1 mo.	5x2	Irido-cyclitis.	Large lymph exudation in ciliary region.
682s	Pontius.	R.	5 wks.	S.	..	Shot.	Degenerated ball.	
369s	Pontius.	R.	3 days	C.	..	Shot.	Lacerated ball.	Mass of flattened lead shot found in vitreous.
697	Radcliffe.	L.	2 days	L.	2 days	9x4	Panophthalmitis.	x-Rays located 2 bodies. Evidence of infection at time of extraction.
699s	Hansell.	R.	2 days	L.	..	Shot	Irido-cyclitis.	
POSTERIOR PART OF EYE:								
432c	Schwenk.	L.	7 days	C.	..	4x2	Irido-cyclitis.	Piece of copper cartridge.
439	Oliver.	L.	3 days	S.	1 yr.	2x1	Shrunken globe.	Extraction not attempted. Vitreous occupied by mass of organized lymph.
442	Ziegler	L.	3 days	S.	2 days	8x3	Tender eyeball.	Steel perforated posterior scleral wall, injuring nerve
443	Shoemaker.	L.	4 days	C.	..	4x2	Extraction failed.	Body non-magnetic.
447	McClure.	R.	4 mos.	S.	..	7x ½	Extraction failed.	Imbedded in lymph.
452	Schwenk.	L.	4 days	C.	..	2x1	Extraction failed.	Body imbedded in sclera.
455c	Risley.	R.	15 days	C.	..	1x1	Extraction not attempted.	Copper, in purulent mass in vitreous.
459	Fisher.	L.	4 days	S.	..	7x6	Extraction failed.	Brass.
465s	Radcliffe.	R.	5 days	S.	..	Shot	Irido-cyclitis.	
473	Oliver.	L.	18 days	S.	..	14x6	Extraction failed.	Steel projected through sclera into orbit.

C = Copper.

S = Shot.

TABLE II.—EYEBALLS LOST.—(Continued.)

Case.	Surgeon.	Eye.	Time Between Injury and Extraction.	Situation of Wound.	Time Between Extraction and Enucleation.	Size of Body, mm.	Cause of Enucleation.	Remarks.
POSTERIOR PART OF EYE.—Continued.								
505	Ziegler.	L.	20 days	S.	...	8x7	Extraction failed.	Body imbedded in lymph.
506	Schwenk.	L.	17 days	C.	...	2x1	Extraction failed.	Body imbedded in lymph.
513	Posey.	L.	3 days	C.	...	3x2	Extraction failed.	Body imbedded in sclera.
526	Van Pelt.	R.	2 days	L.	2 mos.	4x2	Irido-cyclitis.	Body imbedded in sclera. Magnet point entered vitreous.
536	Fisher.	R.	1 day	C.	6 wks.	3 $\frac{1}{2}$ x1	Irido-cyclitis.	Extracted through wound in cornea.
541	Fisher.	L.	3 days	C.	2 mos.	10x6	Irido-cyclitis.	Perforation of post scleral wall.
559	Fisher.	R.	3 days	C.	2 days	2x $\frac{1}{2}$	Panophthalmitis.	Evidence of infection at time of extraction.
565	Radcliffe.	L.	1 day	L.	2 mos.	2x1	Irido-cyclitis.	Magnet point entered vitreous.
575	Zentmayer.	L.	13 days	C.	6 days	3x2	Pur. choroiditis.	Eye in bad shape at time of extraction.
586	Radcliffe.	R.	10 days	C.	...	Shot.	Irido-cyclitis.	
588	Turnbull.	R.	16 days	C.	...	8x2	Extraction failed.	Babbitt metal, non-magnetic.
520c	Posey.	L.	2 days	C.	...	3 bodies.	Extraction not attempted.	Three pieces dynamite cap in vitreous.
618	Risley.	R.	3 days	L.	5 mos.	4x2 $\frac{1}{2}$	Shrunken and tender.	
666	Zentmayer.	L.	1 mo.	C.	...	1x $\frac{1}{2}$	Extraction failed.	Body imbedded in lymph.
668	Shoemaker.	R.	10 yrs.	C.	...	1x1	Extraction failed.	Vision normal for 10 years, then symp. irritation.
IN ORBIT.								
425	Fisher.	L.	2 days	C.	...	4x3	Extraction not attempted.	Double perforation. Steel found in sheath of optic nerve.
507	Sweet.	L.	5 hrs.	S.	...	3x2	Panophthalmitis.	
518s	Fisher.	L.	6 wks.	S.	...	Shot.	Severe pain.	Shot close to nerve. Complete relief of pain.
579s	Oliver.	R.	2 wks.	S.	...	Shot.	Irido-cyclitis.	
591	Radcliffe.	L.	2 wks.	C.	...	4x1	Irido-cyclitis.	Yellow mass filled vitreous chamber.
602	Pontius.	R.	2 days	L.	...	9x5	Lacerated ball.	Steel located in nasal structures—attempts to extract failed.
603s	Posey.	R.	2 days	C.	...	Shot.	Lacerated ball.	Shot perforated ciliary body.
607s	Cramer.	L.	1 mo.	L.	...	Shot.	Extraction failed.	Shot perforated sclera and found in Tenon's capsule.

C Copper. S Shot.

Few eyeballs recover from the violent concussion of large pieces of steel. In the first and second series of cases a large proportion of the eyes lost could be directly traceable to the severe traumatism at the time of injury, and the same is true of the cases included in the present series. In over one-half of the cases in the above table the metal was of large size, varying in seven cases from 4x2 mm. to 5x2 mm., in three from 6x3 mm. to 6x5 mm., in four from 7x1 mm. to 8x4 mm.; one was 7x6 mm., one 8x7 mm., one 9x5 mm., one 10x6 mm., one 12x4 mm., and one 14x6 mm.

Of the 58 eyes removed, the entrance wound was in the cornea in 29, at the limbus in 10, and through the sclera in 19.

With few exceptions it is the usual custom for the surgeons connected with the hospitals from which the cases have been referred, to wait for X-ray localization before attempting to extract the steel with the magnet. The few instances in which the steel was extracted through the open entrance wound, without X-ray examination, are therefore not included in this report. To determine to what extent the magnet was used at the Wills Hospital, from which institution the majority of the cases were referred, to extract the metal without previous X-ray localization, Dr. J. Milton Griscom examined the records during the year he was resident surgeon, and found that, in addition to the 74 cases subjected to X-ray examination and included in this report, of which 40 cases showed a foreign body in the eyeball or orbit, there were only 7 cases which were subjected to magnet extraction without the use of the X-rays. All of these were seen within a few hours after injury, in all the wound was open, and in two the foreign body could be seen in the lens. Of the 5 cases in which the steel was in the vitreous, two eyeballs were subsequently lost, one was advised enucleation but refused, one had vision of fingers at two feet, and one secured 20/30 at the end of three months. The ultimate vision in the 2 cases of steel in the lens was 20/40 and 20/30, respectively.

Three of the cases included in the above tabular statements are sufficiently unique to warrant a more extended report.

CASE 451.—Piece of steel, 12x4 mm., passed along inner orbital wall, and penetrated eyeball back of equator. Panophthalmitis. Enucleation.

J. D., came to the Polyclinic Hospital in the writer's service with history of injury of the right eye while driving a bridge girder into position. Examination showed a ragged wound of the skin equidistant between the inner canthus and the bridge of the nose. No wound of the eyeball could be found, but the globe showed T-3, with proptosis and edema of the conjunctiva and lids. Hemorrhage from right nasal cavity had continued since accident. A large piece of metal, 12x4 mm., was shown to have penetrated into the eyeball immediately back of the equator, with one-third of it projecting into the orbit. An incision was made in the con-

junctiva immediately above the insertion of the internal rectus, and the body extracted by the magnet. From the situation of the entrance wound, the steel must have passed along the inner orbital wall and become deflected outward into the eyeball.

CASE 697.—Two pieces of steel located in vitreous. Magnet extraction successful. Panophthalmitis. Enucleation.

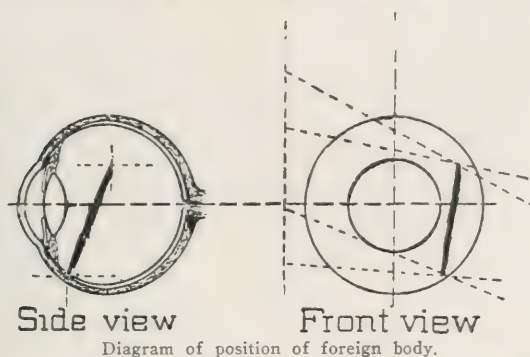
C. M. came to the Wills Hospital, service of Dr. McCluney, Radcliffe, and stated that he had been injured in the left eye the day before while chipping rivets. Scar at upper and inner limbus, 5 mm. long, with wound of the iris and hyphemia. Radiographs showed two bodies within the eyeball, one 10x6x3 mm., and the other 3x2 mm., both situated in lower portion of vitreous chamber near the equator. The magnet secured both bodies, but there were evidences of infection at the time of operation, and panophthalmitis compelled enucleation on the second day after magnet extraction.

CASE 580.—Piece of dynamite cap in eyeball for one year. Removal by forceps, with vitreous illuminated with an electric head-light. V = 6/6.

J. D., aged fourteen years, was injured in the right eye by the explosion of a dynamite cap one year before coming to Wills Hospital, in the service of Dr. S. Lewis Ziegler. No wound or scar could be seen, and ophthalmoscope showed a dark, floating mass in the vitreous, probably a piece of copper. Radiographs showed a metal body, 1x0.5 mm., situated in the vitreous, back of the ciliary body on the nasal side. The metal was removed by forceps through a scleral incision with the vitreous illuminated by a small electric head-lamp. Lens subsequently became opaque, was needled, and later a V-shaped discission of the capsule was made. V, with correction, 6/6.

VALUE OF THE X-RAYS.—It is hardly necessary further to emphasize the importance of X-ray examination in foreign body injuries, since it is now more generally recognized that the size and shape of the metal and its position in the globe are important factors in the diagnosis and treatment, whether extraction is made through a scleral incision or by the route of the anterior chamber. In recent injuries, and while the entrance wound is open, expediency may prompt the immediate employment of the magnet in an attempt to remove a body of unknown size and position through its path of entrance, but there is the risk that the metal

is larger than the wound indicates, and in coming forward with great force under the pull of the magnet may cause serious damage to the anterior structures of the globe. A long, thin body often



makes a small entrance wound, and rests in a position that renders extraction by the path of entry impossible. The operator, ignorant of this fact, injures the internal structures with each application of the magnet. A recent case which shows the value of X-ray localization is as follows:

CASE 704.—Long, thin piece of metal penetrated through the lid and sclera. X-ray localization indicated method of extraction.

F. S. came to the Methodist Hospital, service of Dr. P. H. Moore, with the history of failing sight in the right eye for nearly one year. Vitreous clouded, and no view of interior of eye possible. Radiographs indicated a piece of steel, 16 mm. long, and as thin as a medium-sized sewing-needle, resting vertically in the vitreous, with the lower end imbedded in the choroid, at a point 4 mm. in front of the equator. A small scar in the upper lid indicated the point of entrance of a foreign body, the man recalling a slight injury in that situation a year previously. Since the small entrance wound gave no indication of the size or shape of the metal in the eye, an attempt to remove the metal without this knowledge would probably have resulted in the loss of the eye. The position of the body, as shown by the X-rays, with one end imbedded in the structures at the bottom of the globe, indicated that extraction must be made through an opening in the upper portion of the sclera, in order to release the end of the metal caught in the choroid. The body was readily removed in the manner indicated by the localization.

FAILURE OF THE X-RAYS.—In two cases the X-rays failed to locate a foreign body which was later shown to be present in the eye. The detailed histories of these cases are as follows:

CASE 605.—R. E., history of injury three years before. Foreign body localized and removed. L. E., no history of injury. Lens cataractous. Radiographs failed to show a foreign body. Small piece of steel removed with soft lens.

C. K., patient of Dr. McCluney Radcliffe, was struck in left eye by a piece of steel three years before coming to Wills Hospital. Small scar of cornea, lens opaque. Vision of right eye had been failing for one month before visit to the hospital. No history of injury. Cornea clear, but lens partly cataractous. Small spot in nasal margin of lens suspiciously like foreign body. Radiographs showed a piece of metal in left eye, none in right eye. The lens of the left eye was curetted, and a small spicule of steel, $1\frac{1}{2} \times \frac{1}{4}$ mm. and extremely thin, came out with the soft lens. Later, V-shaped incision of dense capsular membrane; V = 6/5, with correction.

The failure of the rays to secure a shadow of the foreign body in the above case can be explained by the metal presenting the *thin* edge to the tube, so that the faint shadow made by the steel was lost in the denser shadow of the bony structures forming the external orbital margin. The body was in the nasal portion of the lens, and therefore at its greatest distance from the plate. In instances of a piece of metal in the lens, it should be possible to show even a minute body if the tube is placed in a position to shadow the anterior portion of the ball in front of the bones forming the external orbital margin. This was not done, as the lens was curetted before a second X-ray examination could be made.

CASE 641.—Small foreign body in vitreous not shown by X-rays. Iridocyclitis. Enucleation.

A. C., patient of Dr. P. N. K. Schwenk, was injured while chipping armor-plate the day before coming to Wills Hospital. Examination showed incised wound of cornea in horizontal plane to temporal side of the center, iris irregular, hypopyon, and cataract. X-ray examination showed no foreign body; a second examination also gave negative findings.

The character of the injury pointed to the probable entrance of a foreign body in the eyeball, and although two sets of radiographs were made, no shadow was found on the plates. The eye-

ball remained inflamed, iridocyclitis developed, and the globe was removed. Upon sectioning the ball, the vitreous was sanguinous, and an enormous lymph exudation was found in the ciliary region. A piece of steel, 3x1 mm., and extremely thin, was found in the equatorial region, inner side.

It is difficult to explain the failure of the X-rays to indicate this body, except upon the assumption that the thin edge of the metal presented to the tube, and, with the body situated on the nasal side of the globe at considerable distance from the plate, the thin line of shadow was lost in the shadow of the orbital walls.

POSSIBLE ERROR IN LOCALIZATION OF BODIES SITUATED NEAR THE POSTERIOR SCLERAL WALL.—In bodies which are shown to be situated close to the posterior scleral wall or imbedded in it there should always be considered the possibility of a variation in the diameters of the eyeball from the average of 24 mm., the size adopted for the diagrammatic charts employed for localization. This is well illustrated in the following:

CASE 505.—Large piece of steel in vitreous chamber. Localization indicated perforation of posterior scleral wall. Enucleation. Body imbedded in choroid.

M. W. was injured in L. E. one week before coming to the Wills Hospital, service of Dr. S. Lewis Ziegler, on December 28, 1906. Scar on eyelid and sclera and hemorrhage in vitreous. Radiographs located a piece of steel, 8x7 mm., situated 25 mm. back of the corneal center, 5 mm. above the horizontal plane, and 3 mm. to the nasal side of the vertical plane, indicating perforation of the posterior scleral wall. On December 31st, attempts to extract metal failed and the patient refused enucleation. A second X-ray examination made six days later showed that the position of the body had not been changed by operation. On January 18, 1907, the patient went to the University Hospital, service of Dr. G. E. de Schweinitz, and consented to enucleation in the event of failure to secure the body with the magnet. Extraction failed and the eye was removed. The body was found in a mass of thick exudate at the position indicated by the X-rays. It did not, however, penetrate the posterior scleral wall, as was indicated by the radiographs, and this was positively determined by microscopic examination of serial sections of the sclera at the point of lodgment of the foreign body.

CASE 473.—Piece of steel localized as projecting through posterior scleral wall into orbit. Enucleation. Body exactly in position indicated.

H. M. was injured in L. E. two weeks before coming to Wills Hospital, service of Dr. C. A. Oliver. Large wound of sclera, lower inner portion, 4 mm. anterior to equator with pupil drawn down in direction of wound. Radiographs located a metal body, 14x6x4 mm., situated 3 mm. below the horizontal plane and 2 mm. to nasal side of the vertical plane of the globe, with the anterior end of the body 14 mm. and posterior end 26 mm. back of the center of the cornea, indicating perforation of the posterior scleral wall by the end of the metal to the extent of 3 mm. The eye was in bad condition and was removed by Dr. Oliver two days later. In a letter he said: "Body found exactly as localized, one end extending 3 mm. beyond the sclera into orbit."

The error of localization in the first case may be explained by the eyeball exceeding in size the diagrammatic globe of 24 mm. of the localizing chart. The attempt made to secure the metal led to considerable loss of vitreous, and the globe collapsed during enucleation, so that it was impossible to demonstrate that the eye measured more than 24 mm. in its anterior posterior diameter, as was probably the case. The situation of the steel in the second case was found after enucleation to correspond exactly with the plotting made on the diagrammatic eyeball of 24 mm. diameter.

Since all measurements are made from the indicator opposite the center of the cornea, there is always a possible error in localization from carelessness on the part of the X-ray operator in determining the distance of the corneal summit from the indicating ball. The situation of the foreign body is determined with reference to this fixed point, and any error in measurement gives a false indication of the depth of the metal in the eyeball or orbit.

FOREIGN BODIES IN THE ORBIT.—In 25 of the cases of ocular injury included in the present series the radiographs showed the presence of a foreign body in the orbit, and in 8 cases enucleation was necessary. The injury was by iron and steel in 14 cases and by shot in 11. In addition to the above 14 cases, in which a particle of steel passed completely through the eyeball into the orbit, there were 3 cases of partial double perforation by steel, the localization being verified by subsequent enucleation.

NO FOREIGN BODIES SHOWN BY THE X-RAYS.—Of the 282 cases embraced in the present series, 125 were shown by the X-rays to have no foreign body in the eyeball or orbit. In every instance there was reason to suspect the lodgment of a foreign body in the eyeball from the character of the injury, the occupation of the individual, and the depreciation of vision. In the majority of cases there was a wound or scar upon the cornea and opacity of the lens. In a few instances no wound or scar could be determined. A summary of the cases is given in the following statement:

Situation of wound or scar—	Total.	Cataract.	Hem. or Hem. ant. opac. of	
			chamber. vitreous.	
Cornea	82	62	6	14
Limbus	16	4	2	10
Sclera	12	..	..	12
No wound.....	15	6	..	9
Total		72	8	45

Of the above total of 125 cases, 89 were injured by iron and steel, 12 by copper, usually from the premature explosion of dynamite caps, 11 by small shot, 10 by glass or stone, and 4 by coal. Coal is not shown by the X-rays, but examination of the above 4 cases was made to determine the possible entrance at the time of injury of a particles of metal into the eye.

COMPARATIVE RESULTS OF MAGNET EXTRACTION.—Two recent reports of magnet operation permit an appropriate comparison to be made of the result of extraction by the Haab magnet by the route of the anterior chamber, and by the medium-sized magnet operated upon the 110-volt lighting circuit through a scleral incision, either in the immediate vicinity of the metal, as shown by X-ray localization, or as near the body as possible. Unlike other operative procedures upon the eyes, in which there is a general uniformity of technic and a consequent definite expectancy in the final results, each foreign body injury must be studied as a separate and distinct condition, the ultimate result of operation being influenced not alone by the method followed by the operator, but depending upon the situation and character of the injury, the extent to which the structures of the eye have been injured by the foreign substance, the length of time it has remained in the eye, and the ease with which it is removed.

In a recent paper Wharton* reports 50 cases of extraction of

*Ophthalmoscope, May 1, 1909.

foreign bodies operated upon by him at the Royal Eye Hospital, Manchester, England, 33 of which were saved and 17 lost. Of 37 cases in which the entrance wound was in the cornea, the steel was anterior to the vitreous in 12, and in the vitreous in 25, of which latter 11 eyes were lost. In 10 cases the path of entry of the steel was through the ciliary body, with loss of 5 eyes, and in 3 the steel entered through the sclera, with subsequent loss of 1.

In these cases, 26 were operated upon on the day of accident, with loss of 8; 9 on the second day, with loss of 3; 8 on third day, with loss of 5; 2 from the fifth to the seventh day; 2 on the tenth day, with loss of 1; and 3 between the sixteenth day and five months. With the exception of 2 cases in which a scleral incision was made after localization of the metal by the X-rays, the steel was removed through the open entrance wound or drawn into the anterior chamber by the Haab magnet and extracted.

Detachment of the retina was found in 5 eyes, in which the giant magnet was employed, four instances of recent injury (three on the same day and one on second day) and one in which the steel entered the eye five months previously. Wharton regards the use of the giant magnet as inadvisable in cases not seen for several weeks after injury, confirming the opinion expressed in the second series of cases here reported, that it is impossible to gauge the amount of traction of the giant magnet upon a body the size and position of which are not known and which has remained in the globe until covered with exudation. Wharton reports one of the cases in which, even though the patient's eye was more than a foot from the magnet point, the whole of the iris was torn from its base and slipped through the corneal wound with the metal. The eye was lost.

A somewhat similar report of the results of magnet extraction has been made by Goulden,* late Senior House Warden at Moorfields, London. His report covers a period of five years, from 1901 to 1905, inclusive, in which 118 cases of iron and steel foreign bodies within the eye were submitted to the operation of magnet extraction by the surgeons at this hospital. Of the total number, 42 were examined over one year after operation, 38 could not be located after leaving the hospital, and 38 eyes were enucleated.

Of the 34 cases in which the path of entrance was in the

*Royal London Ophthalmic Hospital Reports, vol. 17, 1908.

cornea or corneo-scleral junction, extraction was through the cornea or limbus in 29 and through a scleral incision in 5: in 4 cases in which the steel entered through the sclera, extraction was through the original wound or scleral incision. Of the 38 eyeballs lost, the steel entered through the cornea in 33, at the limbus in 2, one through the sclera, and 2 unknown.

Several methods are followed by the surgeons at Moorfields in the extraction of foreign bodies, but the usual plan is to drag the foreign body into the anterior chamber by the Haab magnet, incise cornea the opposite to the situation of the body half-day between the edge of the pupil and the limbus, and then introduce the terminal of the small magnet or magnetized spud.

A comparison of the visual results of the cases embraced in the two reports above mentioned, with those secured in the cases included in this paper, is as follows: Since only those cases which have been under observation for a period of at least eight months are included in the reports of Wharton and Goulden, the same plan is followed in compiling the cases of the writer.

<i>Wound of cornea or limbus:</i>	Wharton.	Goulden.	Sweet.
Steel anterior to vitreous—			
V = 6/12 or better.....	12	11	14
V = Less than 6/12.....	0	6	6
Steel in vitreous—			
V = 6/12 or better.....	0	8	24
V = Less than 6/12.....	14	9	62
<i>Wounds of ciliary body:</i>			
V = Less than 6/12.....	5	..	..
<i>Wounds of sclera:</i>			
V = 6/12 or better.....	0	1	2
V = Less than 6/12.....	2	3	12
	<hr/> 33	<hr/> 38	<hr/> 120

The figures of Wharton and Goulden comprise cases in which extraction in the majority of instances was practised by the giant magnet, drawing the foreign body through either the anterior chamber or the open entrance wound, without previous X-ray localization, while those included in the writer's tables were all examined by the X-rays prior to operation, and the steel in most instances was attracted through a meridional scleral incision as close as possible to its indicated position. While some interest may attach to a study of the visual results of the two plans of treatment, such a comparison is of little value in determining the superiority of either method. The fate of an injured eye depends more upon the several factors to which attention has previously

been called than upon the particular method pursued in removal of the metal. The advocates of the scleral incision believe that the use of the giant magnet in the extraction of bodies of unknown size and position through the anterior segment of the eyeball is not without danger, and evidences are not wanting to prove that this contention is true. The objections made that a scleral incision for the purpose of extraction is followed by retinal detachment at the point of operation is not borne out by the cases in which clear media permit ophthalmoscopic examination years after operation. Retinal detachment after injuries of foreign bodies is not uncommon, but I have not seen it occur at the point of the scleral incision. The lodgment of a piece of steel in the retina or choroid, the subsequent inflammation, and the shrinkage of the new-formed fibrous tissue that must follow the removal of the metal are probably more important factors in the cause of retinal detachment than is a clean-cut meridional incision in the sclera. Wharton shows 5 cases of retinal detachment following extraction by the giant magnet through the anterior chamber, and in 4 of the cases the injury was recent.

AN INSTRUMENT FOR OPENING FROM THE LACHRYMAL SAC DIRECTLY TO THE NASAL CAVITY.

BY H. GIFFORD, M. D.,

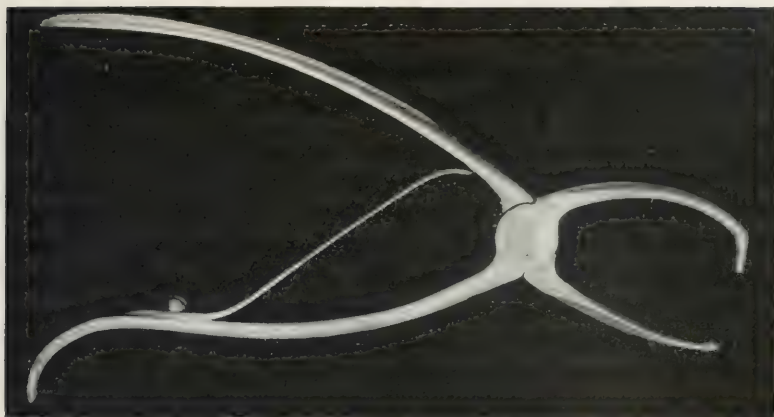
OMAHA, NEB.

Professor of Ophthalmology and Otology, University of Nebraska.

In cases of incurable stenosis of the lachrymal duct the operation of boring directly into the nose through the inner wall of the sac, which was advocated in the early part of the last century by Woolhouse, and at times since by other operators, has had a revival, the last phase of it being the operation of Toti (1) which consists essentially in cutting down to and chiselling out the bony wall of the tear sac, and then cutting corresponding holes in the membrane of the nose and the sac. This, however, is quite a little job, and it has occurred to me that an instrument such as is herewith figured, and which I have had made for the purpose, could be used to cut out the tissues between the sac and the nose in a much simpler fashion. (2) I have used it in six

(1) Abst. in *Ophthalmoscope*, June, 1909, p. 455.

(2) It were indeed strange if so simple a device had not been thought of before, and after having used this instrument for some weeks I came across a note in a discussion of a paper of Auharet and Lagrange (*Klinische Monatsblätter für Augenheilk.*, May-June, 1907), in which Gayet refers to his having used an instrument like a conductor's punch for this purpose.



The cutting blade of the forceps is hollow clear through, so that an indefinite amount of bone can be cut with it without clogging the opening. This instrument can be furnished by Mr. Mates, care A. L. Undeland, 1407 Douglas St., Omaha, Neb.

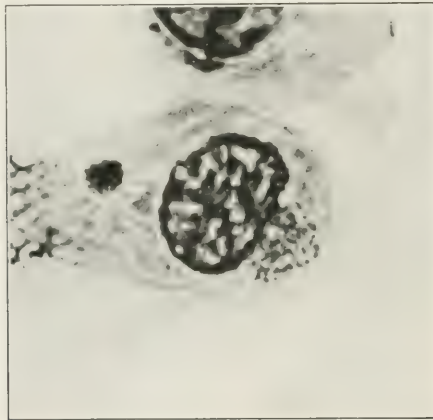
cases, and it has worked excellently except in one case where the bone was so thick that it had to be bored through with a drill and then enlarged with the punch. It has been necessary in one case to remove the anterior end of the middle turbinate in order to be able to get the punch into the proper position, and I notice that there is a tendency always to apply it somewhat too low. Unless it is pushed well up the gouge instead of striking the thin portion of the bone strikes it where it is thick and hard to get through. In performing the operation the nose and inner wall of the sac are cocainized, the upper tear-point being first slit down into the sac, and then another cut at right angles to this made through the outer wall so as to allow the punch to enter freely without any danger of injuring the soft parts. Just what the outcome of these cases will be I am not prepared to say, there is no difficulty in getting a hole that you can put your finger through, but I must confess that in the short time that I have watched them there is a decided tendency for them to close up; and although the lower tear-point and canaliculus are left intact, the eyes still water to some extent, the sucking action of the orbicularis naturally tending to draw air back into the sac from the nose rather than draw tears into it. On the other hand, nothing could be easier than to teach the patient how to probe such an opening, and even if there is some epiphora the patient will be as well off as if the tear sac had been extirpated, at the expense of a much simpler operation.

A RAPID METHOD OF STAINING THE TRACHOMA BODIES OF HALBERSTAEDTER AND PROWAZEK.

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While the evidence is perhaps not yet conclusive that the cell inclusions recently described, first by Halberstaedter and Prowazek, and later by Greeff, are the infective organisms of trachoma, their great diagnostic importance is no longer open to doubt. The staining method used for their demonstration has been that of Giemsa, which requires eight or nine hours, obviously an undesirably long time for routine examinations. It seemed probable to me that Wright's well-known modification of Leishman's stain would give equally as satisfactory if not better results, and this I have found



Trachoma Bodies in Epithelial Cell.

to be the case. This stain requires only a few minutes for its application.

The stain is applied in exactly the same manner as in the staining of blood films.* I have found that the specimen is conveniently obtained by scraping the cocainized conjunctiva with one edge of a cover glass instead of a knife, and by making use of the tears as a diluent instead of salt solution as generally advised. If desired, the cover glass may be previously sterilized by flaming it. The tears and scrapings collected along the edge of the cover glass are

*For the method of preparing the stain, see Mallory and Wright, *Pathological Technique*, Philadelphia, 1908.

then gently spread over the surface of another cover glass and allowed to dry in the air. The preparation is then flooded with the staining fluid, which is allowed to act one minute. Distilled water is then added, about eight drops, until a slight scum is formed on the surface of the mixture, which is allowed to remain three or four minutes. The preparation is then differentiated by washing off the staining mixture with distilled water and allowing the water to act about one minute. The differentiation may be followed by placing the over glass film side up on a slide and watching the process under a low power of the microscope. The preparation is now quickly dried with fine filter paper and mounted in balsam.

It will be seen that by this method the diagnosis may be readily made while the patient waits. The intensity of the strain is indicated by the accompanying photo-micrograph, which shows two characteristic groups of inclusions within one cell. One group, the larger, is in contact with the nucleus, the other is free in the cytoplasm and is surrounded by a clear zone. By this method also ordinary bacteria are strongly stained, so that an infection with these is easily recognized. I have found it especially valuable in differentiating from trachoma, cases of lymphoid hypertrophy of the conjunctiva complicated with acute conjunctivitis.

A NEW LAW.

THE ANGLE OF REFRACTION IS THE LAW OF PERSPECTIVE.

J. H. RHOADS, M. D., PHILADELPHIA, PA.

Some time ago while riding on the front of a trolley car, watching the vanishing phenomenon of the car track, I asked myself, "Where will those rails, which are 5 ft. 2 in. apart, come together?" And the answer came, "When they reach the point where the normal eye can no longer separate them." Consequently, I instantly saw that the vanishing point was governed by the angle of refraction.

Hence, the law of the vanishing point is: All parallel lines are seen to approach each other at a *one-minute angle*.

This angle controls *all* vanishing points, and all lines and planes; in fact, the size of all objects and the angle of all lines, whether large or small, broken, crooked, curved or straight. And, moreover, it matters not whether they are viewed downward from a balloon, upward from a coal mine, or outward from an observer at any conceivable incline.

The horizon has nothing whatever to do with the vanishing of any lines or objects, unless they happen to be nine feet apart when they leave the observer.

The angle within which the human eye cannot see is conceded to be *one minute*—the average may be a little less, not greater—therefore, the eye separating two cob webs at twelve inches from it would place them at $3/1000$ of an inch apart. At ten feet from the eye the angle would be $30/1000$ of an inch wide. At three-quarters of a mile the angle would be twelve inches apart, while at three and a half miles it will be separated five feet two inches, which is just wide enough to admit a trolley track. This angle continued to the *horizon* would gap about nine feet. Prolong this angle over the edge of the *horizon* to the half-risen moon and objects would have to be seventy miles apart on the face of the moon to be visible to the unaided eye, and continuing this angle on to the sun, we find spots on the disk of the sun, viewed through a smoked glass, by the naked eye, must be over 27,000 miles in extent to come within, or rather without this angle, to be seen by the human eye. To project these lines on to the nearest measured star, which requires three years for its light to reach us, and they would be wide open to the extent of 42,000,000,000 miles, and double stars would have to be placed at the extreme corners of this vast isosceles triangle, or they would be blended into a single star.

Surely, everybody must be woefully annoyed in looking over pictures in the papers and magazines to see the distortions, both in photographs and drawings. The cameras are jammed so close to the objects in order to get a large picture that the center of the picture is twice as large as the outside, although it may be an automobile which cannot be over twenty feet long, showing one wheel twice the size of the other. The draftsman too takes all liberty with his angles.

The rule laid down by the best drawing books is *all parallel lines* meet on the horizon (no matter what their width). One book says, "A painter (artist) loves a distant vanishing point, and, in truth, *architectural* drawings look better with a distant vanishing point." There is but one place for any vanishing point.

I believe each pair of parallel lines in perspective is an isosceles triangle and the length of its sides is governed by the width of its base; especially is this true if they are less than nine feet apart when they meet between the observer and the horizon. If they are wider than nine feet they gap on the horizon.

Parallel lines 4 inches apart would come together at 1,320 feet,

only one twenty-sixth ($1/26$) of the distance to the horizon. Parallel lines one foot apart come together at three-quarters of a mile, less than one-sixth distance to the horizon, and parallel lines 2 feet apart come together at a mile and a half from the observer. While lines nine feet apart come together on the horizon and all lines wider than nine feet, if on a level plane gap at the horizon, but if they go up a mountain side or off into the air they meet where the one-minute angle brings them together, i. e., where the human eye can no longer separate them.

Such being a fact, a man up in a balloon seeing objects on the earth disappear, or reappear, and knowing their dimensions, would know instantly his altitude. A man's hat, for instance, could be seen at an altitude of half a mile. A trolley track at three and a half miles would just begin to vanish.

An aviator plowing along the sky when he saw a big letter "E" made on Snellen dimensions would surely be a specific distance away from it. If, for instance, each limb was nine feet in extent he would just be six and a half miles away when he could read it. If each limb of the letter "H" were to be made three and a half feet in extent the man in the biplane would know that he would be half way to the "E" or about three and a half miles away. The same thing would occur at night, as lights placed 2 feet apart would blend together when you moved a mile and a half away from them. Consequently, I believe it would be possible both by day and by night to guide and direct the aeroplane by the one-minute angle of the eye by distance as well as ranges.

Lighthouses should be equipped with double lights, one above the other so that sailors seeing two lights would know the exact distance of their ships from the lighthouse. An instrument could be devised from which could be read the distance as fast as the vessel advanced or receded from the light.

Why do parallel lines come to a focus anywhere in perspective? It is because the human eye can no longer separate them. Theoretically, then, *all parallel lines are the sides of isosceles triangles and their length is governed by their bases.* The size of objects seen singly, in pairs, or in rows, are governed by this angle.

Hence, a landscape drawing made upon a scale of this proportion would not only please the eye, but would give the distance of objects and their size. It would also follow that a landscape photograph taken with a camera having the same angle as the human eye would show the same exact measurement, so that the measured

size of an object on the horizon or anywhere else would tell its actual measurement and actual distance.

The eye of an eagle, however, looking over a drawing which would appear perfect to the human eye, would make the eagle think that he had been eating a piece of petrified cheese, or that he had an attack of delirium tremens, and that he was seeing things. Likewise, if I put my 2-inch telescope on the trolley tracks which have come together at three and a half miles, they will be separated, to again come together at a certain distance beyond. With my 4-inch telescope I can separate them again, and again they will come together at a definite point.

In working out this data I came across this fact—that the moon occupies 280 feet on the horizon, and the sun a little more. The one-minute angle of the eye gaps, or covers, nine feet on the visible horizon, and as the moon subtends an angle of 31 degrees, its space on the horizon is nine times as much, and this is why the sun at setting and the moon on rising seem to be so many times larger than they do in the sky. They occupy more space than most houses do that happen to be located on the horizon (up in the sky there is nothing to compare with them). The setting sun is 32 times wider than a tree twelve inches in diameter that is three-quarters of a mile away. Therefore, the sun is 32 ft. in diameter at this distance. It is no wonder it looks the size of a gigantic cart-wheel as it sinks among the trees. I have never seen this fact specifically brought out before.

Let the angle of refraction govern the perspective of *all* drawing. It should not only lead the architect, but it should guide the sculptor's chisel, and command the painter's brush.

BLOOD PRESSURE IN ITS PRACTICAL RELATIONS TO OPHTHALMOLOGY.*

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The Retinal Pulse.

As observations on the radial pulse were the earliest clinical studies of blood pressure, so the visible pulsation of the retinal vessels was the first symptom connected with the blood pressure to attract the attention of observers with the ophthalmoscope. Visible pulsation of the retinal veins at the head of the optic nerve is quite

*Read before the Colorado State Medical Society, September 15, 1909.

common. It is an instance of the maximum pulse wave, occurring where internal and external pressure are nearly balanced. The intra-ocular pressure is very nearly equal to the blood pressure within the emergent veins, and when raised by the arterial pulse wave the veins at the point of emergence are temporarily emptied and collapsed.

Careful observation of this pulsation in connection with general disease might throw light upon alterations in the general venous pressure. In 1878 Wadsworth and Putnam¹ found that the pulsation of the retinal veins was not much altered by compression of the jugulars; but could be entirely stopped by pressure on the carotid, or as a primary effect of the inhalation of amyl nitrite. They also pointed out a slow rythmical alteration, probably connected with rythmical changes in the arterial blood pressure. But this method of studying the venous blood pressure has since been neglected.

An appearance early noticed with the ophthalmoscope is the broadening and pallor of the retinal veins in some cases of anemia. This change is not found in all cases of anemia, and may be quite absent although the anemia revealed by the blood count and general symptoms may be extreme. It was early recognized that this must depend on a partial collapse of the retinal veins, an incomplete filling; so that the flexible tube flattened under the intra-ocular pressure, as a pneumatic tire does when the air partly escapes. This causes the vein to appear broader; and looking through a thinner column of blood gives the paler color. So far as I know the connection of this symptom with the general arterial pressure has not been investigated, typical cases of the kind are not common; but there can be little doubt regarding the connection with lowered blood pressure in the veins. In the present state of our knowledge this widening of the retinal veins should be spoken of as a symptom of lowered venous pressure, rather than as a symptom of anemia.

Pulsation in the retinal arteries is much less frequent than the venous retinal pulse. But it was early recognized after the invention of the ophthalmoscope, and its general significance appreciated. Very slight arterial pulsations can be recognized in a good many eyes. But under normal conditions the pressure in the artery is much above the intra-ocular pressure, and the condition

unfavorable for the recognition of the arterial pulse. In the great mass of eyes the intra-ocular tension is only about one-fifth to one-third of the arterial blood pressure. Only when the latter is greatly diminished, or the intra-ocular pressure undergoes pathologic increase, do the mechanical conditions favor a maximum arterial pulse. After severe hemorrhage, in syncope, or in aortic disease marked by great decrease in the diastolic arterial pressure, the pulsation in the retinal arteries becomes very noticeable; and may be traceable over a large part of the eye-ground.

Incomplete obstruction of the central retinal artery, although it lowers the local arterial pressure, at the same time shuts off the pulse wave, and no visible arterial pulse occurs. The contraction of the artery has been entirely gradual in the cases watched with the ophthalmoscope.

On the other hand arterial pulsation in the retina is an important, although inconstant symptom of glaucoma. Formerly it was puzzling to find arterial pulsation present in one case of glaucoma and absent in another which showed equally high intra-ocular tension. But this can be largely explained by co-incident differences in the general arterial pressure. Glaucoma may develop in a patient with normal blood pressure, in which case a moderate increase of intra-ocular tension would cause visible pulsation in the retinal arteries. On the other hand a greater increase in the intra-ocular tension might be coincident with very high arterial blood pressure, and cause no visible arterial pulse. The general relation of glaucoma to the general arterial pressure I will refer to later.

Increased Blood Pressure.

Thus far we have considered chiefly the ocular evidences of lowered blood pressure. Of even greater general importance are the ophthalmoscopic symptoms of increased blood pressure. Ophthalmoscopic study of the vascular system has advanced so far that it is chiefly hindered by lack of knowledge regarding general vascular changes. It is difficult to say when fulness, tortuosity, and dilatation of the retinal veins are due to *increase of the venous blood pressure*, and when they arise from pathologic changes in the walls of the veins themselves. But in some cases we can positively assign the cause. In thrombosis of the central retinal vein, the cavernous sinus, or the orbital veins, or pressure by rapidly

growing malignant tumors back of the eyeball, or the changes produced by sudden compression of the body, we assign the changes in the retinal veins to increased intravenous blood pressure. From the number and freedom of venous anastomoses increase of blood pressure from any local cause is necessarily only temporary. Even in cavernous sinus thrombosis, if the patient lives more than a few days the symptoms of venous stasis begin to diminish.

The condition known as cyanosis of the retina is clearly one of venous blood pressure increased as compared with the resistance of the walls of the veins. In some forms of polycythemia lessened resistance of the walls may be a factor. But in retinal cyanosis associated with contracted pulmonary artery and open foramen ovale, we may fairly assume that the enormous dilatation of the retinal veins sometimes observed, is due to chronic high venous blood pressure present throughout the body. Yet in these cases, as shown by the microscopic examinations made by Baquis,² the changes in the veins are chiefly mechanical and passive, secondary to changes occurring in the arteries.

Increased Arterial Pressure.

The ocular symptoms of abnormally high arterial pressure are of general practical importance, especially because they check and supplement the evidence obtained by the various forms of sphygmomanometer. For increased arterial pressure is commonly general, and even when emphasized locally, its symptoms depend on general causes. We are not yet able to separate high arterial pressure from pathologic conditions of the arterial walls. In the Appendix to the Reference Handbook of the Medical Sciences, published last year, Bishop discusses blood pressure under the heading of "Arterio-sclerosis," opening his article with the statement: "An exact definition of the term arterio-sclerosis cannot be given." The ophthalmoscopic symptoms of increased arterial pressure are those of alterations in the vessel walls. Yet they are so intimately associated with increase in the blood pressure that if they are at all marked, elevated readings from the sphygmomanometer may be confidently predicted.

While this portion of the paper was under preparation a woman aged 46 came for headaches due to hyperopia and commencing presbyopia. There was no history of other disturbance of health, but the ophthalmoscope showed the retinal arteries nar-

row, irregular in caliber and color, some parts being light, with broad reflex. The changes were rather slight, but so characteristic that increased arterial pressure could be predicted. The sphygmomanometer gave a reading 165 mm., a pressure distinctly abnormal, especially for a woman at the age of 46.

The ophthalmoscopic changes associated with high arterial pressure have been widely discussed among ophthalmologists during the last few years. They include visible alterations in the vessel walls which are sometimes very striking. The arteries appear narrowed and this narrowing is commonly irregular. The same vessels may present portions that are only one-half the diameter of other portions; and usually the widest parts have not more than their normal diameter. In some cases all the retinal arteries show narrowing. The relatively uniform narrowing of the arteries, along with a change in color, the general color being lighter, and the arterial reflex more brilliant and at least relatively broader, gives what has been known as the "silver wire," or perhaps better, "copper wire" appearance. These changes in the appearance of the retinal vessels are, to some extent, due to organic changes in the vessel walls. Probably in the beginning continuous spasm of the muscular coat is an important factor. However, more permanent changes commonly supervene, and these we recognize by other departures from the normal appearance. Another significant appearance to which Mr. Gunn called attention is a "cork-screw" shape of some of the small arterial branches. This is striking, but not always present.

An extremely important symptom to which attention was called years ago, along with the significance of the "copper wire arteries," by R. Marcus Gunn, is afforded by the alterations of the veins where they are crossed by the arteries. Such alterations include: (a) Narrowing of the vein at the crossing, often associated with some dilatation of the distal side, as though the pressure of the rigid artery had hindered the flow of blood in the vein. (b) Disappearance of the vein on each side of the arterial blood column where the artery crosses in front of it. This, like the lighter color of the arteries, may be ascribed to opacity in the arterial wall. (c) "Kinking" of the vein at the crossing. The vein approaching an artery obliquely does not continue its normal direction across that of the artery; but turns to run parallel to the

artery for a little distance and then crosses it almost at right angles, very much as we see a country road which meets a railroad at a very oblique angle.

This "kinking" of the veins is a most striking, characteristic, and reliable evidence of chronic vascular disease in the retina. It will readily be distinguished from the normal encircling of an artery by a vein which occasionally occurs. If advanced the changes referred to may be distinguishable wherever the larger arteries and veins cross each other. But they will not be equally pronounced at all the crossings, and at earlier stages they may be confined to a minority of such intersections. We cannot, however, accept them as abnormal when the appearances described are confined to one or two vascular intersections in each eye.

These alterations of the veins at their crossings are among what de Schweinitz³ has called the "pathognomonic symptoms." They positively declare the presence of vascular disease. Marked permanent irregularities and narrowings of the arteries have the same significance, so have patches of white or gray in the arterial walls, and specks of hemorrhage scattered throughout the fundus. Slight changes in the color of the vessels and slight general narrowing of the arteries belong with what de Schweinitz calls "suggestive symptoms." Another suggestive symptom and one of the earliest to appear, is a discoloration of the optic disk, a haziness with a dirty pink color suggestive of brick dust.

It is obvious that the discovery of the ophthalmoscopic symptoms of increased blood pressure, whether these be declarative or only suggestive, should lead to investigation of the arterial pressure with the sphygmomanometer. But it is if possible more important that elevated readings of the sphygmomanometer should lead to a careful ophthalmoscopic examination. The normal blood pressure varies enormously with age, sex, and individual peculiarity. Furthermore it may undergo marked temporary elevation or depression. Sphygmomanometric readings, taken alone, are of rather uncertain significance. Even marked symptoms of cardiac change, or noticeable hardenings in the larger arteries, are very inferior to the evidence obtainable with the ophthalmoscope from the smaller arteries of the retina, in arriving at a correct and definite interpretation of a rise of arterial pressure. Even a very moderate rise of blood pressure accompanying the vascular changes

referred to, is of greater and more serious significance than a much higher blood pressure without such changes.

Blood Pressure in Ocular Diseases.

It may help to illustrate the importance of this subject of blood pressure to refer briefly to certain diseases of the eye more or less dependent upon it. Here, as elsewhere throughout the body, nutrition depends constantly and absolutely upon the capillary blood supply, kept up by the arterial pressure. Blood pressure is thus an active, important factor in most diseases. A very striking instance of its importance is furnished in the *atrophy of the optic nerve* and retina which sometimes occur after extensive hemorrhage. This may be from trauma, gastric ulcer, uterine or other conditions, where the only connection with the optic atrophy is through the hemorrhage, and in all probability through lowered blood pressure.

When the blood pressure falls to a certain point the intra-ocular pressure tends to render the interruption of nutrition more complete in the eye, than it is in other parts of the body. And the delicate nervous apparatus of the retina cannot have its nutrition interrupted for more than a brief period without serious permanent damage. I have seen a case of *amblyopia with acquired red-green color blindness*, and vision reduced to 4/12 and 4/22, in which practically normal vision was restored with increased blood pressure through treatment for cardiac dilatation. It would be interesting to study the connection of the extreme *asthenopia* connected with phthisis, to which I referred in a paper read before this society two years ago, with the lowered blood pressure of this disease. The vascular origin of pigmentary degeneration of the retina, accepted and advocated by Nettleship and others, seems the most probable theory for a group of allied conditions.

The connection of increased arterial pressure with primary *glaucoma* is a very close and important one. I have seen no case of typical primary glaucoma since I began to use the sphygmomanometer in which the arterial pressure was not noticeably increased. Frenkel⁴ reported such increase in fourteen out of fifteen cases of primary glaucoma. Greene,⁵ in his observations at the National Military Home, has never seen acute glaucoma with normal blood pressure. I have pointed out that the blood pressure may furnish an important indication in discriminating

between primary and secondary glaucoma. Dunn⁶ has called attention to its value in prognosis, and it may well decide for or against certain lines of treatment.

The very intimate association of the ophthalmoscopic symptoms of increased arterial pressure with those of so-called albuminuric or *renal retinitis* is a subject worthy of a symposium itself. Equally interesting and extensive is the relation of blood pressure to the different forms of *obstruction of the retinal vessels*—spasm, thrombosis and embolism. That a certain portion of cases of *retinal detachment* depend on increased blood pressure in the chorioidal vessels is indicated by the latest investigations by Lauber⁷ and von Hippel.⁸

The relation of *hemorrhage* to blood pressure has been more definitely studied in the eye than elsewhere, and certain facts observed in ophthalmology ought to be carefully considered in connection with hemorrhage in other parts of the body. In the treatment of hemorrhage two absolutely opposed methods have been in common use; one attempts to lower the blood pressure, even by venesection, the other endeavors to contract the arteries and thus diminish the blood supply of a part, although this must result in an increased arterial pressure. In the eye we have learned that hemorrhage may occur with increased blood pressure, and apparently depend directly upon such increase. But we have also learned that in other cases, as pointed out by Dr. Stevens⁹ in the paper read before this society four years ago, that intra-ocular hemorrhage may be associated with abnormally low blood pressure. This was also illustrated in some of the cases reported by Dr. Melville Black¹⁰ in the section on Ophthalmology of the A. M. A., 1908, and by the tables of Fox and Batroff.¹¹ A rational explanation of this is that low blood pressure, like increased coagulability of the blood leads to venous thrombosis, which in turn is the cause of hemorrhage. These observations on the eye indicate that a more exact pathology of non-traumatic hemorrhage may lead to the rational use of these opposing therapeutic measures, each in its appropriate class of cases.

In a general way we may say that the pressure of the blood in the blood vessels is one of those basic, simple, physical facts so intimately associated with all vital processes, that the study of

its relations with pathologic conditions is likely to prove fruitful in every department of practical medicine.

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CANTHOPLASTY. LOWERING EXTERNAL CANTHUS.

GAYLORD WORSTELL, B. S., M. D.,

BELLE PLAINE, IOWA.

A young woman recently came to me with the declaration that she never liked her eyes. She claimed they were too small and because of their slanting position, made her look like a Chinaman. This misfortune was a great puzzle to her, as all her people and especially her sister, had large beautiful eyes. The patient explained that her photograph was desired to appear in a forthcoming publication and if anything could be done to improve her appearance it would be a great advantage to her.

Both eyes were normal, with the exception of the characteristics noted in the patient's complaint.

After securing local anesthesia of the conjunctival sac and infiltrating the skin and other tissues in the field of operation, the operation was performed as follows:

A canthotomy was first made extending from the external canthus to a point B, Fig. 1., the site chosen for the new canthus. This incision was made with one snip of the curved scissors, curve upward, care being taken that the canthotomy should continue the free margin of the upper lid downward and outward in a regular and natural curve. With straight scissors a second incision was made through the skin from B to C, Fig. 1. This incision was perhaps $1\frac{1}{4}$ to $5/16$ inch in length and was made parallel to the ciliary margin of lower lid. A third incision divided the skin from A, Fig. 1, two m. m. from ciliary margin, to C, Fig. 1, thus

completing the triangle and removing a wedge shaped piece of skin, O, Fig. 1.

The operation is completed with the insertion of three fine silk sutures, XXX, Fig. 2. The first is passed from without inward through the apex of the flap composed of the outer end of lower lid, then from within outward through the free margin of conjunctiva at a point opposite the new canthus, outward through



Fig. I.

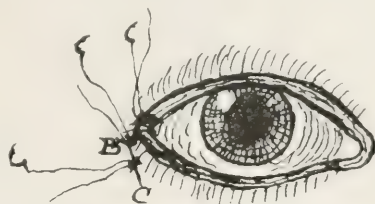


Fig. II.

the skin at new canthus and is tied. This suture stretches out the lower ciliary margin and brings it snugly into the new canthus. The external canthus is effectually and neatly lowered and the palpebral opening is enlarged. A second suture coapts the conjunctiva and skin at outer end of upper lid margin, Fig. 2. A third, the skin margins from B to C, Fig. 2.

The operation gave a perfect and satisfactory cosmetic effect and may be compared to the change in expression noted with the temporary adjustment of a lid or palpebral opening to an artificial eye.

Editorial

THE NEED OF A NEW TERM.

The perverted use of the term sympathize, by the French and Germans, referred to in the last number of the OPTHALMIC RECORD, is undoubtedly the result of the want of some standard, convenient word to express the relation of the exciting eye to the sympathizing one. The terminological floundering to which this lack of uniformity led is well illustrated by the passage from Panas, quoted in my previous remarks, in which in a single paragraph, he refers to the exciting eye as the injured eye, the first eye, and the sympathizing eye. We can readily understand how the Germans, to whose language the word was entirely foreign, would be glad to adopt the suggestion to use sympathize as a transitive verb; though how the French could originally have done so is hard to understand. That they did so in defiance of the well-established usage of non-ophthalmological French, simply shows how dire they felt the necessity to be. In English, we have, until recently, gotten along fairly well by referring to the first affected eye as the injured or the "exciting" eye, but since it has become established, largely through the work of Fuchs, that the exciting eye is in a great majority of cases the seat of a somewhat definite type of inflammation, the need of some term to describe this form of disease has become more urgent. For this purpose I would suggest the term *sympathogenic*. By its adoption we could save circumlocution, and gain in precision. In using it we could speak of the first affected eye as the sympathogenic eye; and of its inflammation as the sympathogenic inflammation.

H. GIFFORD.

Reports of Societies

CHICAGO OPHTHALMOLOGICAL SOCIETY.

Meeting of April 12, 1909.

DR. FRANK ALLPORT, President, in the Chair.

Interstitial Keratitis.

Dr. W. F. Coleman reported a case involving the left eye, the infiltration extending over the whole cornea so that the patient barely had light perception. He was given mercurial treatment and injections of sodium saccharate, and now, after one year, he has 20/20 vision. All that remains is a circular band intermediate between the center and the circumference of the cornea, of a dusky red opacity without any Hirschberg's lines. On January 21 the opacity was materially less and vision was 20/25; there was photophobia, lachrymation, moderate discomfort, no iritis, and the infiltration had extended to the right eye, and the patient in one week barely had light perception. After six weeks he had an iridocyclitis. There was no typical vascularization of the cornea until six weeks after the initial stage. He was finally put under the 500-candle-power light for fifteen minutes daily, and in one week his vision came up to 15/100 and in two weeks more to 20/30. In the last three weeks he had a relapse, with vision reduced to 20/40, with considerable pain, which was relieved by blood-letting of the temple.

Calcereous Keratitis.

Dr. W. F. Coleman presented a patient with a calcareous keratitis, a transverse calcareous film of long-standing, at least thirty years. An iridectomy had been done, with some improvement. There was no history of previous eye trouble to account for the condition. Dionin for one year proved ineffectual; then sodium chlorid, 5%, was injected, and after the first two or three injections there was considerable improvement, although there is no reason to hope for a permanent improvement.

Dr. Oscar Dodd treated a somewhat similar case, but with less calcareous infiltration and consequently better vision. He operated on both eyes and got a very excellent result. Vision improved from 15/200 to about 20/80, and the intense irritation and dread of light passed away. The infiltration was above the Bowman's membrane, except at the margin of the cornea, where it extended into the deep layers of the cornea. He was able to

peel off the infiltration and the epithelium grew over the cornea with very slight opacity and a greatly improved condition.

Dr. Coleman also presented an improved membrane punch.

Voluntary Recession of the Globe with Simultaneous Lid Closure.

Dr. Frank Brawley exhibited this case for Dr. Murray.

A Case of Aniridia.

Dr. Hugh Blake Williams reported a case of aniridia, occurring in a girl of nine years old, one of four children, all healthy and the parents as well as far as the eyes were concerned. Vision in the right eye was 4/200; left = 5/200. She had a mixed nistagmus, microphthalmus and a total congenital aniridia, with pyramidal cataracts and the cortex of both lenses somewhat opaque. With an apparatus suggested by Dr. Chas. H. Beard and devised by him, consisting of two blackened coquilles with stenopaic slit at 180 degrees, vision came up to 20/200, with crossed stenopaic slits, one at 90 degrees, the other at 180 degrees, to 21/100. Then Mr. J. T. Brayton constructed two brass bowls with a curvature equal to 25.00 D., and over the eyeball a disk about $\frac{3}{4}$ of an inch in diameter was cut out and crossed stenopaic slits were placed in this. By making the curvature of these disks 9.75 D. toward the eye, vision came up at once. She has 3 to 16 D. myopia. He then ground a pair of —8 disks in a light tint about one, placed them in front of the stenopaic slits, bringing vision up to 20/60, so that the patient is now quite comfortable, has no difficulty in sunlight, sees well in the distance, but vision for near is still very much reduced, and she prefers for reading the No. 4 coquilles.

Melanosarcoma.

Dr. H. H. Brown reported the case of a man, 51 years of age, who was operated on 11 years ago for an epithelioma of the upper lip. He made a rapid recovery with evidence of further involvement for about fifteen months, when it was found necessary to remove all the lymphatics of the right side of the neck. Six months later the submaxillary gland on that side was removed, and a year later he had the sublingual gland removed. For five years he seemed to be in perfect health. Last fall his right eye began to fail, and in January, 1909, he had a distinctly opaque cornea with tension +2. An interesting feature of the condition was that it would last for three days and then all evidence of irritation would

subside and the eye assumed almost a normal appearance. In March Dr. Brown did a very deep iridectomy, with the hope of relieving the man from the frequent attacks of glaucoma. Tension would disappear under enormous doses of salicylate of sodium, 30 grains, every 3 hours, and the man would be perfectly comfortable for three days, when there was a recurrence of the condition. Finally an enucleation was done, and an examination of the tissues removed disclosed a melanosarcoma, which had its beginning in the ciliary body in the upper nasal quadrant, that extended back nearly to the disc. The man's physical condition was excellent throughout.

Fibroma of Cornea.

Dr. William A. Mann reported a case of congenital fibroma of the cornea in a girl of 19. The humor was vascular and extended from just above the limbus to below the center of the cornea, was circular, 9 mm. in diameter and 3 to 4 mm. in thickness. There had been no enlargement since birth.

The tumor was removed with a Graefe knife and the surface curetted. The growth was examined by Dr. Zeit. Vision improved from 1/100 before operation to normal after operation.

Dr. Mann stated that in looking over the literature he found a few cases of fibroma of the cornea, but only one congenital case.

An Analytical Criticism of the Cardinal Eye Symptoms of Exophthalmic Goiter.

Dr. George F. Suker, after presenting the signs of the disease, drew the following conclusions:

From the description and analysis of the various signs we can with propriety discard all the various theories advanced for the causation of these signs excepting the increased muscle tonus which is brought about by direct activity of the thyroid toxin—either by way of the nerve fibers, or directly upon the muscles themselves. No doubt the individual anatomic construction of the conjunctival fascia, as well as the individual size of the globes, are but incidental contributing factors. Also, that the so-called Muller's muscle is not the important factor, while the cylinder of plain muscle fibers springing from the septum orbitale (Landstrom) is all-important. It can also be seen, that all of the lid signs are exceedingly closely related as to the direct cause, but symptomatically independent of one another. That there is a causal relation between the Stellwag

and von Graefe sign must be accepted. One sign is just as valuable as the other in all its aspects, and the characteristics of all are very similar. The exophthalmos sustains a slight relation to all—a contributing factor. The vaso-dilation which necessarily results from the sympathetic interference is but a secondary consideration in each sign. The anatomic variances in the conjunctival fascia is at no time a direct etiologic factor. Each one of the signs can be intrinsically modified by the absence or presence of an anatomical lesion.

Finally, all of the lid signs are dependent upon a stimulation of the sympathetic nerve fibers and the palpebral muscles supplied by them; in addition there is a direct increased muscle tonus. This view is further substantiated by the fact that a paralysis of the sympathetic produces almost the exact opposite train of lid symptoms. Above all, it is more than passing strange that the iris seldom is involved, though the fibers are so profoundly implicated.

Lastly, the writer stated that literature references are rather abundant to sustain the contentions made, and that his personal observation are in accord with these facts.

Dr. Wm. Wilder said that many years ago he noted a sign not described in text-books, which was confirmed by consulting neurologists, and he has also seen the same sign since in cases of exophthalmic goiter. If the patient is asked to follow the finger which is moved steadily through a certain arc, the eye does not follow the finger evenly and steadily, but in a jerking manner. It is not an invariable symptom and does not always speak for exophthalmic goiter, but it was found in cases where other lid symptoms were not present. He thought with Dr. Suker that probably all these symptoms are due to hypertonicity of the muscles. The sign was also found in cases of a lateral spinal sclerosis, multiple sclerosis, and might be compared with the voluntary tremor of the latter condition.

Dr. Suker has also observed this sign in one or two cases and is convinced that the entire group of symptoms is due to hypertonicity causing a stimulation of the sympathetic system.

Staphylococcus Vaccination in Phlyctenular Disease.

Dr. Henry Gradle: On the assumption that the prolongation of the disease so often met with in the later attacks of phlyctenular might be due to secondary invasion by staphylococci.

quite commonly found, he tried in such cases the injection of cultures killed by heat. He selected nine consecutive cases of phlyctenular disease showing staphylococcus in smears which had proved rebellious to the usual treatment. In every instance improvement began at least after the second injection (intervals of one week). In two and one-half to four weeks all irritation has disappeared. While a similar gradual recovery might have occurred in any one case with staphylococcus vaccination it could not have been expected with such regularity in a whole series of cases previously rebellious to customary treatment.

Since staphylococci are not the original cause of phlyctenules, this treatment does not protect against a later reappearance of the disease.

The most striking observation was a case of superficial keratitis (post-phlyctenular) which had persisted for a year and had not yielded to previous appropriate treatment, the disease disappeared completely after four vaccinations.

Dr. W. A. Mann has used the staphylococcus vaccine in four cases in which other methods of treatment had not sufficed to effect a cure. One case was traumatic ulcer, another an ulcer dependent on rheumatic etiology and two cases were associated with acne. These were seen in the later stages of the disease, when the ulcers had almost healed and the injections of the vaccine were given to prevent a recurrence of the ulcer and to cure the acne. The result in each instance was a most favorable one. He has also used a streptococcus vaccine in cases of iritis of the so-called rheumatic variety with good results.

Dr. W. F. Coleman had one case of severe relapsing phlyctenular keratitis in a child 12 years old, which he treated by the usual methods for six months, and while the patient improved somewhat, she never completely recovered. For three months he used the incandescent lamp with good results, although no impression was made on the course of the disease. Finally he resorted to the use of the X-ray, and although the cornea was covered for three-quarters of its surface with ulceration, in less than ten days nine-tenths of the opacity had disappeared. The treatment was continued for eighteen months, and now the child has nearly normal vision, and there has not been any relapse.

WILLIS O. NANCE, Secretary.

CHICAGO OPHTHALMOLOGICAL SOCIETY.

Meeting of May 19, 1909.

DR. FRANK ALLPORT, President, in the Chair.

Symposium on Ophthalmologic Legislation.

Examination of School Children's Eyes.

Dr. Albert E. Bulson, Jr., of Fort Wayne, Indiana, presented a paper on "Legislation Concerning Examination of School Children's Eyes," in which he emphasized the importance of creating a public sentiment in favor of eye tests for school children before we can expect to secure much legislation bearing upon the subject.

The importance of systematic examination of the eyes of school children is now appreciated by medical men and many educators, and in a number of states the Boards of Health and Education have endorsed and recommended the general adoption of the tests proposed. In Vermont, Massachusetts, Connecticut and Colorado the tests are made in compliance with laws requiring their use. In many localities teachers are testing the vision of school children, of their own volition without suggestion or recommendation of their superiors. But there is still much work to be done before eye tests are generally adopted in our schools, and the most effective work is now being done in those communities where medical men have gone before teachers' associations and carefully presented the subject, or have demonstrated the value of the tests by practical application in the schools.

In those schools where the tests have received practical application the revelations are astonishing in showing to what an extent the so-called mental defectives and incorrigibles are due to remediable eye defects. In Philadelphia, for instance, it was found that 60 per cent of the school children had eye strain or defective vision, and in many of these instances children were thought to be backward or mentally deficient, whereas the correction of the defects by properly adjusted glasses was followed by remarkable improvement in the work and conduct of these pupils. The Director of the Department of Public Health, in making his report concerning this work, says that the tests have demonstrated that many so-called mental defectives and incorrigibles do not really belong to that category, and he emphasizes the fact that the expense incurred in making the tests and supplying glasses to those too poor to pay for them has been more than counterbalanced by the increased

worth of an educated citizen over an illiterate one who may become a public charge, or whose earning capacity is so curtailed that he can contribute but a small amount to the support of the state. He further believes that in many cases such children would have joined the criminal class or in some way would have become a burden on the community.

To present these and similar statistics and pertinent facts before legislative bodies and school authorities will have much weight in aiding us in our efforts to secure appropriate legislation. But to effect an early and favorable consideration it is necessary to secure the co-operation of the parents of school children. The average legislator and the average member of a school board is not possessed of an over-abundance of generosity toward something that has not only the approval of, but is demanded by the public. Therefore, the subject should be discussed in all its details before numerous organizations, and particularly the various women's clubs and teachers' associations.

The task of educating the public logically falls to the ophthalmologist, who by training and experience is best fitted to present the subject in a comprehensive manner, and if one or more ophthalmologists in every community will take an active interest in the work it will not be long before the eye tests of school children will be a part of the curriculum of every school in the country.

Dr. Bulson favors the Allport plan, which provides that the tests be made by school teachers, or if not by the teachers by regularly appointed members of the Board of Health. If oculists make the tests, it is sometimes looked upon as an interference with private affairs, or it is charged that the oculist is working in his own interest (sometimes true), and the charge is reiterated by envious fellow oculists who have not been selected to make the examinations. If the examinations are made by teachers there is seldom any serious objection, and for practical purposes the teachers in our schools can be readily taught to recognize the pronounced eye defects, and the latent errors of refraction will be noticed by the observing teacher if she notes the manifestations common to such conditions. Few teachers will be found who are not willing to go to the trouble of making the examinations when they once understand what can be accomplished in making their school work easier by raising the mental and physical standard of a large percentage

of defectives who are a source of annoyance and extra work because of their defects. Every parent whose child has been benefited by the eye tests immediately becomes an ardent champion of the plan to make eye tests a regular feature in the schools. When public sentiment sanctions the plan, and the more progressive schools have put the plan into operation and demonstrated its value, then and then only will it be possible to secure general legislative enforcement of eye tests in our public schools.

Examination of Eyes of Transportation Employes.

Nelson M. Black, Milwaukee, Wisconsin, read a paper on the "Visual Requirements of Transportation Employes." The subject was discussed under five headings, submitted as queries:

1st. Is there a necessity for examination of transportation employes as to their vision and color perception?

2nd. What amount of vision and what color perception is necessary for such employment?

3rd. What visual acuity and color perception should be required of such employes?

4th. Who should decide whether an applicant for employment or for re-examination meets with the requirements?

5th. Should old employes requiring glasses to bring their vision up to the required standard, be retained in service and retain their grade in line of promotion?

The fact that the United States Navy, all railway systems and practically all metropolitan street railways, require of their employes a certain visual standard and color perception answers the first query in the affirmative.

The amount of vision absolutely necessary for an individual to possess to safely be placed in control of transportation units is a mooted question. Visual acuity as determined by test-types is not a criterion of an individual's vision when put to a practical test. This is evidenced by the result of examination carried out by the officials of the New York Central Lines.

Enginemen long in service whose distance vision was reduced by latent hyperopia becoming manifest (vision normal with glasses) were given a field test. This was conducted by marking off 100 feet intervals up to 6,000 feet from a semaphore having a clear sky background. The men upon an engine were run toward the signal of 20/200 being able to give a signal indications correctly at from

and gave indication of the signal as soon as it could be determined by them. The result was remarkable. Men with test card vision

The amount of vision and color perception that should be required of transportation employes is decidedly another proposition. That the best possible vision and color perception should be demanded goes without question.

The majority of railway companies have the examination conducted by some subordinate. This seems to meet the demand; but many roads, recognizing that their examiners have been lax in the past, have adopted more stringent rules regarding the conduction of the examination.

Many roads recognize that it would be far better to have the examination conducted by an ophthalmologist, but the great length of many of the systems would preclude this unless each division had its own ophthalmic surgeon. The majority of street railways have the examinations conducted by the company surgeon.

Many roads have recognized the value of glasses for the improvement and preservation of vision as well as for protection of the eyes and recommend their use in their rules.

Legislation Concerning Opticians.

Dr. E. V. L. Brown discussed the present status of Optometry Legislation. Bills licensing opticians in Illinois have been defeated in 1905 and 1907 through the efforts of this society and a strong effort is being made to defeat the bill before the present session of the Legislature. Dr. Brown recommended in case this effort was once more successful, that a compromise between the society and opticians agreed upon and made a law at the next session. Under any such agreement the society should insist that the State Board of Health be authorized to examine and license opticians to fit glasses under certain restrictions which mean unequivocally that such fitting of glasses is a part of the practice of medicine. State Boards have precedent in the examining and licensing of embalmers and midwives. The State of Texas has such a law concerning opticians.

Dr. J. Elliott Colburn said that about thirty years ago he addressed a school teachers' meeting in New York State on the subject of examining the eyes of school children, and he has done this repeatedly since. He has always found the teachers anxious to learn how to do this work and willing to co-operate with phy-

sicians. He believes that eventually it will come to this, that every child on entering a school will be required to present a certificate of examination from a competent oculist as to the condition of its eyes. The examination is quite as important as that for vaccination or any other condition. As now conducted, the examination is liable to give rise to many sources of error, because children who have eye troubles, such as astigmatism, will pass the teacher's examination by nipping the lids, so that the child can read 20 30 on the test cards even though it may have a high degree of astigmatism. In one case a child received minus glasses from an optician for a hypermetropic astigmatism. Of course, the child could see better, but only with great effort. Therefore, it is essential that the eyes be examined by a competent refractionist, who will furnish a certificate. This is a very important matter; one that cannot be overestimated. Dr. Colburn has seen children who were stumbling, blundering idiots, transformed into bright, competent students by proper glasses. He also agreed with Dr. Bulson that automobile drivers should be licensed with respect to their eyesight.

Dr. W. F. Coleman agreed with Dr. Bulson's suggestion with reference to the licensing of opticians. The whole question is, Are these men practicing medicine? The courts have decided that they are not; therefore, the courts should be instructed correctly as to what constitutes practicing medicine. The law says that anyone prescribing for an infirmity or a deformity is amendable to the law unless he is a physician. The prescribing of glasses is done for the correction of an infirmity or a deformity, and therefore such action should be considered practicing medicine. The legislators do not understand this question properly, nor do they give the matter much thought. Why should physicians be required to take a four years' course and then secure a license, in order to be permitted to practice medicine, when a layman may fit glasses, which is really practicing medicine? Whether they be opticians or osteopaths is of no consequence. A man might elect to treat the nose and throat without taking a medical course and ask for a license. Or he may limit himself to amputating the legs or to treat umbilical diseases without taking a course in medicine, and ask for a license. No man should be permitted to limit his practice in such a manner, and therefore the optometry bill is unjust and unfair.

Dr. Paul Guilford has done considerable railroad work during

the past eight or nine years. He said that there can be no discussion as to the absolute necessity of examining transportation employes as to vision and color perception. Most railroads require vision of 20/20 in each eye without glasses of new men, but after men have been in the service a certain number of years and their vision falls below the standard, they are required to wear glasses. An old employe wearing glasses ordinarily is allowed to have a vision of 20/40 in one eye provided the other eye is 20/20 with glasses. Unfortunately, many railroads allow some subordinate to make the preliminary examination. The test the vision and the color sense, but there is no doubt that these men should be examined by a consulting ophthalmologist. As to whether old employes should be allowed to wear glasses, to bring the vision to normal, and be retained in the service and be in line for promotion, it certainly would be hard on these men to be dropped from the service when their vision falls below the standard as the result of age. If glasses can correct the trouble, these men should be retained.

Dr. Clark Hawley had two interesting personal experiences showing the effect of strong light on the eyes. Recently he was forced to face a very strong electric headlight on a street car, and became so blinded that he was forced to stop for a time before he regained his vision sufficiently. At another time he purposely looked directly into a very powerful electric light in front of his office building, and the result was that he was practically blind for about five minutes and for about fifteen minutes was unable to read anything. He has a patient now whom he is sure would absolutely lose his vision if he were compelled to face a very strong light.

Dr. A. E. Bulson (in closing) said that the only thing to do to have eye tests introduced in the public schools is to create a public sentiment in favor of the tests. The plan outlined in his paper would, he thought, be effective in that direction.

As to optometry legislation, he agreed with the suggestion made by Dr. Brown to put this matter in the hands of the State Board of Health, and advised that the committee appointed by the society should endeavor to shear the bill of as much harm as possible, so that if it should pass it will not work a hardship on anybody.

WILLIS O. NANCE,

Secretary.

Notes and News

Dr. Harry Friedenwald, of Baltimore, Md., has returned from Europe.

Simeon Snell, who died recently, left an estate valued at about \$152,000.

Dr. Chalupecky has received the title of Professor of Ophthalmology at the Bohemian University of Prag.

Dr. A. Possek, of Vienna, has received \$160 from the Academy of Sciences of Vienna for his original work on the conservative treatment of senile cataract.

Dr. C. Palermo, who formerly was located in Messina has qualified as privatdozent in Rome, Italy.

Mr. Andrew Duncan, consulting surgeon to the Dundee Royal Infirmary and Attending Surgeon to the Dundee Eye Institution, is dead.

Mr. Wm. Brown, Carlisle, England, who for many years maintained a private dispensary for the free treatment of eye diseases, is dead.

An eye department has been added to the Burton-on-Trent Infirmary, and will be in charge of Mr. E. C. Green, of Derby, England.

Dr. Wilhelm Reis, first assistant to Prof. Hermann Kuhnt, in Bonn, has received the title of professor.

Dr. Emrys-Jones has been reappointed for a term of five years to act as medical referee in all ophthalmic cases in the county court circuits, comprising most of the large towns in Lancashire and Cheshire, England.

Edmund M. Russel Rendle, consulting surgeon to the Royal Plymouth Eye Infirmary (England) is dead at the age of 77 years. Until 1893 Mr. Rendle was surgeon to the institution, and later was elected its president.

Mr. Sydney Stephenson, editor of the Ophthalmoscope, and one of the most widely known of British ophthalmologists, has been re-elected ophthalmic surgeon to Queen Charlotte's Hospital, London, for a further term of 5 years.

Dr. George C. Clement, ophthalmologist to Hale Hospital, and local surgeon for the Boston and Northern Street Railway Co., died August 27, at his home in Haverhill, Mass., aged 54 years.

An interesting historical sketch appeared in the Journal of the Missouri State Medical Association for September, contributed by Dr. James Moores Ball, of St. Louis. The title was "Dr. Adam Hammer, Surgeon and Apostle of Higher Education." Dr. Hammer was also an accomplished ophthalmic surgeon.

John R. Hicks, of New York, says that all methods of technique used in the ophthalmoreaction are faulty in that they do not sterilize the eye before making the instillation. Harmful microbes in the eye are facilitated in their action by the use of the test solution, and cause ulceration that is severe in some cases. The author explains his method of sterilization of the eye by using antiseptic solutions in the eye for a week before instillation. He has obtained positive tests in the eyes of patients in whom there was no tuberculosis when the eye was not sterilized.—*Medical Record*, August 7, 1909.

The medical inspection of the Atlanta, Ga., public schools which is under the direction of Dr. Stewart R. Roberts, is now well organized. Recently arrangements were made to give free treatment of diseases of the eye, ear, nose and throat to those unable to pay. The following hospitals and attending physicians will care for the cases: Grady Hospital every Friday from 2 to 4, by Drs. F. Phinzy Calhoun, Robert B. Ridley, Jr., and Alexander W. Stirling; at the Atlanta College of Physicians and Surgeons on Thursday from 2 to 3:30, by Dr. Abner W. Calhoun, and on Tuesday at 3, by Dr. Dunbar Roy; and at the Atlanta School of Medicine by Dr. J. M. Crawford every Thursday from 1 to 3, and by Dr. Robert B. Ridley, Jr., every Tuesday from 3 to 4.

BOOK NOTICES FOR THE OPHTHALMIC RECORD.

MINOR OPHTHALMIC AND AURAL TECHNIQUE.—A short treatise dealing with minor procedures about the eye and ear. Adapted to the use of those requiring a comprehensive knowledge of this subject. By Alfred Nicholas Murray, M. D., Chicago. Assistant in the Department of Otology and Laryngology, Rush Medical College. With 98 illustrations in the text, reproduced from photographs and original drawings. 1909. Cleveland Press, Chicago.

OPHTHALMIA NEONATORUM.

Interest in this disastrous disease grows apace. The Central Midwives Board at a meeting on July 22d, approved the following leaflet, copies of which will be issued in due course to midwives, local supervising authorities, and recognized training schools and teachers:

Inflammation of the Eyes in Newborn Children (Ophthalmia Neonatorum).

This is a very common cause of hopeless blindness, which is one of the greatest misfortunes that can happen to a child. A very large number of children will be saved from blindness if the following directions of the Central Midwives Board are observed. It generally arises from purulent discharges from the mother getting into the baby's eyes at birth. It is therefore of the greatest importance that this should be prevented: (1) By curing such discharges if possible before labor. This requires medical treatment (Rule 1, 19 (2) and (3) as revised). (2) By taking the greatest care that such discharges shall not be carried into the baby's eyes when it opens them for the first time soon after the head is born. The discharges may be carried into the baby's eyes in the following ways: (a) The discharges collect round the eyes, especially the eyelashes, and easily get into the eyes. This can be generally prevented if the midwife takes care that "as soon as the child's head is born, and if possible before the eyes are open, its eyelids and the surrounding skin are thoroughly wiped with clean material, such as cotton-wool, lint, or rag, using separate pieces for each eye." The reason for this is that the piece used for wiping the first eye will be polluted by the discharges, and should not be used for the other eye. (b) New-born babies

sometimes rub their eyes with their hands. This may rub the discharges into their eyes. As soon as the child is born the hands must therefore be carefully cleansed. (c) When the baby is bathed the discharges with which its body is covered during labor are washed off into the bath water. If its face is washed in this water, matter may get into the eyes. N. B.—The above directions are to be observed in *all* cases, whether purulent discharges are known to be present or not.

The following notice has been issued by the Birmingham Health Committee to all the midwives in the city. It is largely based upon the rules recently drafted by the British Medical Association in the Report upon Ophthalmia Neonatorum.

Inflammation of the Eyes in Young Infants (Ophthalmia Neonatorum).

The above disease accounts for more than 10 per cent of all cases of blindness, and over one-third of all the cases of blindness in blind schools are due to this disease. If taken in time the disease is curable. Midwives are required to observe the following directions.

I.—Treatment of Cases Presumably Normal as Regards Danger of Ophthalmia Neonatorum.

CHILD.—In every case in which a medical practitioner is not in attendance the midwife shall adopt the following routine procedure:

(i) Directly the head is born, and before the eyes are opened, the lids and the surrounding skin should be wiped clean on each side with a separate piece of sterilized wool.

(ii) Nothing should be dropped into the baby's eyes.

(iii) The face and the body should not be washed in the same water. Fresh water should be taken for each.

II.—Treatment of Cases in which the Mother Suffers from a Purulent Vaginal Discharge.

(a) MOTHER.—If there is a purulent vaginal discharge, whether in pregnancy or labor, medical help must be obtained.

(b) CHILD.—If a doctor is not already present when the child is born he should be sent for immediately, in order that any necessary application to the child's eyes may be made.

III.—*Procedure Where an Affection of the Child's Eyes is Observed.*

If there is any inflammation of the baby's eyes, however slight, shown by redness, swelling or discharge, the midwife or nurse must explain that the case is one in which the attendance of a registered medical practitioner is required, and medical help must be obtained in accordance with the rules of the Central Midwives Board.

N. B.—Failure on the part of a midwife to act promptly in reporting any case of inflammation of the eyes will be deemed to be a serious offense by the health committee.—*Ophthalmoscope.*

GAMBETTA'S EYE.

The *Mémorial de la Librairie*, in a recent issue, prints the following letter from the private correspondence of Gambetta, in which the great statesman relates in detail, for the enlightenment of his father, how expensive a matter it is to engage the services of a well-known oculist when the removal of an eye is imperative. "Both my eyes," writes Gambetta, "were affected, but the right one was so much the worse that there was danger of its affecting the other. Dr. Fienzal advised me to consult Dr. de Wecker, who insisted that an operation was necessary. Needless to say the diseased eye was removed some days ago, and I am now in possession of an artificial eye which I have already tried and which, so the promise runs, will deceive even the closest scrutinizers. But though the operation was successful, I will be compelled to be absolutely quiet a whole month. Do you realize what that means to me? Under ordinary circumstances the inconveniences might be overcome, but with the price of commodities soaring skywards on account of the Exposition, and absolutely no source of income during my enforced retirement, I cannot but realize that I am facing financial disaster. Again, on account of its being necessary to make a model for the artificial eye, the bill for the eye alone will amount to 900 francs. Were this all, I might be somewhat reconciled to my expenses, but there is another item to consider, and not an inconsiderable one,—namely, a gift for Dr. de Wecker, who has refused to accept money." Considering that the artificial eye was worth 900 francs, a tidy sum even in these plutocratic days when money is thrown with a lavish hand on things that are less needful than an eye, it ought not to

surprise us at all to learn that the diseased eye became an object of veneration and was coveted by a number of connoisseurs. That it was finally acquired by an irrepressible American millionaire and carried triumphantly to America, should be a source of gratification to all those good folk among us, who are avid of seeing in their own country many, if not all, of the curiosities with which Europe is so plentifully strewn. The dramatic words of the *Echo de Paris* best express the final destination of the great Tribune's eye: "A pupil of the oculist de Wicker, who was assistant at the time of the operation was presented with the eye by Gambetta himself, who was then a lawyer of some repute with small regard for its future value on account of its once having belonged to him. The canny student must have been blessed with considerable prescience for he bottled it carefully and guarded it with rare solicitude. Years passed and the obscure lawyer became the illustrious statesman, the student in the meantime garnering laurels as an oculist. As the latter's fame increased he added thereto, considerably, by showing the impressionable of his wealthy clientele, his unique possession; and ere long his patience and care were amply rewarded, for an American millionaire, with an insatiable thirst for curiosities, materialized and bought the relic. To-day Gambetta's eye, in its original bottle, is safely stored away in America."—INTERSTATE MEDICAL JOURNAL.

The minister of the interior of France has issued to the prefects an important circular relative to the measures to be taken for the prevention of infantile blindness. Notwithstanding that the number of cases of ophthalmia neonatorum has sensibly diminished during ten years, much yet remains to be done in this field. The circular refers to the decree authorizing pharmacists to furnish midwives with a 2 per cent solution of silver nitrate for preventive instillation in the eyes of the newborn. It recommends the utmost publicity for the following notice: "If the child's eyelids are red, swollen, or glued together, if there is any trickling of liquid or of pus, you may be sure that it does not come from a draught, but from a serious disease. You should suspect ophthalmia, which may make the child blind, and should cause it to be immediately examined and attended by a physician that very day." Finally, the circular calls on the prefects to organize in

their departments a medical service for the prevention in school children of the disorders resulting from neglected myopia. It also insists on the necessity for suitably equipping both in personnel and material the local ophthalmologic clinics.

A permanent investigating committee for the aid of the blind, instituted by M. Mirman, director of assistance and public hygiene, has been at work for three months at the ministry of interior, and M. Clemenceau informed himself as to the views of this committee before issuing the above mentioned circular to the prefects.

The recent inaugural thesis of Dr. Jules Vergne on eye inspection in schools, brings strongly into view the gravity of the disease and the necessity for combating it with energetic measures. The following figures are taken from the statistics given by Dr. Vergne: in a *lycée* of the department of the Cher, out of 275 pupils examined only 130 were found normal; in a communal school in Paris, 85 children out of 202 showed a perceptible diminution of visual acuity.

Myopia is generally held to be of school origin. If it were really such, the districts where the illiterates are most numerous should furnish the least myopics. Dr. Vergne, however, found entirely the opposite conditions prevailing, when arranging by departments according to the rules of revision the list of young men exempted from military service for myopia. But if the school is not the primary cause of myopia, it is none the less true that the average of myopia increases from class to class. The sight of the children, then, should be the object of constant care, and it is to be wished that eye inspection should form part of the medical inspection of schools, as it has done for some time in England. Thanks to the happy initiative of certain specialists, like Dr. Baudry of Lille, Professor Truc of Montpellier, Professor Motais of Angers, this inspection is already in operation in a certain number of towns.—(Jour. A. M. A.)

THE OPHTHALMIC RECORD

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CONSERVATIVE SURGERY IN OCULAR INJURIES.*

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It is evident that the treatment of ocular injuries must be approached from a different standpoint to that which would be assumed for injuries elsewhere in the body, and that the methods of general surgery are not sufficient to meet the special requirements. The eye presents a complexity of tissues within a comparatively small area, so that a traumatism to the eye may involve at one time, mucous membrane, cartilage, muscle, skin, sensory and motor nerves, a nerve of special sense—in short, an intimate approximation of dissimilar structures. In addition there are interposed three specialized parts, the cornea, lens and vitreous, each of which frequently bears the brunt of traumatism, and upon which, to a large extent, the integrity of the eyeball and the preservation of vision depend. As all of these structures derive their nutrition from adjacent tissues, it is again obvious how intimately dissimilar parts of the eye are associated. Furthermore, traumatism to an eye immediately places upon the ophthalmic surgeon the responsibility for maintaining the integrity of the other eye, a responsibility, the greatness of which, together with the judgment required, has probably no parallel elsewhere in the practice of surgery. It is the object of this paper to show that the treatment of injuries to the eye is gradually being revolutionized, that better results will be obtained from such injuries in industrial centres where eye injuries are common, and that the pendulum is gradually swinging

*Read before the Section on Eye, Ear, Nose and Throat Diseases of the Pennsylvania State Medical Society, Philadelphia, September 29, 1909.

toward the side of conservatism, rather than to that of hasty enucleation.

The Comparative Vulnerability of Various Ocular Tissues.

The resistance of various ocular tissues to injury varies in proportion to their location, their composition and their properties as culture media to subsequent bacterial proliferation, upon all of which also depend, to a large degree, the course and prognosis of a given case. Thus the writer has seen within a few months an almost complete severance of an ocular muscle from a piece of wood imbedded in the eyeball, followed by the complete restoration of the excursions of the extraocular muscles, as well as the innervation and visual acuity of the eye. Furthermore, a case in which the entrance of collodion into the eye had caused a complete denudation of the corneal epithelium, practically the whole cornea staining with fluorescein; followed by an almost marvelous rapidity of epithelial regeneration and restoration of vision. In contrast to these cases is one in which a pair of pliers struck the eye after a forcible attempt on the part of a patient to clinch a nail, resulting in rapid panophthalmitis. On the other hand, rapid incapsulation will often constitute a barrier of defence to further involvement, evidences of which are scattered throughout the voluminous ophthalmic literature on the subject. The mention of a few may be of interest. In one case a piece of stone remained quiescent in the iris for thirty-two years, notwithstanding that stone, as a rule, causes violent inflammatory reaction.

In another case I assisted in removing a small piece of glass from the anterior chamber, which had remained quiet for ten years. Calcified lenses have been removed from the anterior chamber after years of quietude.

In a case under the writer's observation, a steel needle passed through the cornea, iris, lens, and vitreous, becoming imbedded in the retina, where it could be easily observed with the ophthalmoscope. Its course was shown by a delicate line of scar tissue extending through the vitreous.

The degree of vulnerability of the sclerotic coat has by no means been settled. Injuries of it may be either direct or indirect. The position of the eye with its surrounding contour of bony structure would seem to confer a certain immunity to direct rupture of

the sclera. A case reported below, however, will show the possibility of such an occurrence.

Unusual Forms of Ocular Traumatism, with Report of Author's Cases.

(1) W. P., a boy ten years of age, while playing ball struck his head on the edge of a broken hemlock plank, a piece of wood from which pierced the forehead just above the left eyebrow, about three-quarters of an inch from the nasal bone, and penetrated the tissues quite deeply. He pulled the splinter from the wound, which subsequently bled quite profusely, but the bleeding was stopped by his companions, who took him home. A physician was called, who saw the boy about forty-five minutes after the accident. At that time the eye was swollen, the swelling extending to the nose and cheek. After being under observation for seven weeks, the patient was brought to the writer, who advised an exploratory operation, which was performed as follows:

An incision was made through the conjunctiva and capsule of Tenon. A silk thread was passed through the tendon of the internal rectus muscle, which was then completely tenotomized, considerable adhesions and cicatricial tissue being present. The portion of the muscle holding the ligature was then retracted, exposing a piece of splinter of wood one and one-half inches long, and from five to six mm. in diameter. This wood had escaped the muscle and was wedged between it and the sclerotic coat. After removing the wood with forceps, and cleansing the wound, the severed ends of the muscle were re-attached to the eyeball. For a short time after the wound had healed there was slight diplopia. At the present time there is binocular single vision, the excursions of the eyeball are normal in every direction, and the visual acuity is 20/20.

Case 2. This case illustrates how long a foreign body may remain quiescent in the eyeball or its vicinity, and that iron does not necessarily always produce siderosis. M. MacS., an ironworker 39 years of age, came to the Medico-Chirurgical hospital for the treatment of a burn of the conjunctiva, resulting from contact with melted iron. At that time the writer noticed a lump about one-eighth inch above the right eyebrow, regarding which the following history was elicited: Twenty-three years previous an explosion occurred in the iron works where the patient was employed, and a piece of metal penetrated the area which attracted the atten-

tion of the writer. A small vertical incision was made and a piece of the metal was removed, three-quarters of an inch long, a quarter of an inch wide and from one thirty-second to one-sixteenth of an inch in thickness. There was not a trace of siderosis, notwithstanding that for twenty-three years the metal had remained deposited in the tissues near the eyeball.

Case 3. This case illustrates the recovery of an eye following the escape of considerable vitreous. The patient, a boy twelve years of age, had been under the observation of Dr. O. F. Mershon, one of my assistants in the Medico-Chirurgical hospital, who obtained the following history: While handling an ice pick the latter penetrated the right eye at the left lower quadrant, just to the side of the insertion of the inferior rectus muscle, causing an opening an eighth of an inch in diameter, from which vitreous humor was escaping in considerable quantity. The bead of vitreous was snipped off, the eye was irrigated and a pressure bandage applied. When I saw the case there was still a slight oozing of vitreous, which I again snipped away and touched the wound with a solid stick of nitrate of silver. I then inserted a conjunctival suture, continued the boric acid lotion and atropin instillations. The wound healed by granulation. In sixteen days there was complete recovery with restoration of twenty-thirtieths vision. Ophthalmoscopic examination one year afterward showed no gross changes excepting an area of chorio-retinal degeneration corresponding to the seat of puncture.

Case 4. C. W., a clerk forty years of age, while attempting to clear a skylight of snow, broke the pane of glass and a sharp piece of it became dislodged and not only cut the eyelids, but also the eyeball. The wound extended from the juncture of the inner and middle third of the right eyebrow diagonally downward and outward to a point one and a half inches below the middle of the lower eyelid, severing all the tissues in its path, including the eyeball. There was prolapse of the iris, and considerable vitreous had escaped through the wound in the sclerotic coat. There was considerable intraocular hemorrhage. The wounds having been united with sutures, and a bandage applied, the patient was put to bed. The subsequent treatment consisted of instillations of atropin, administration of gray powder, irrigations of boric acid solution and constant application of gauze compresses wet with a solution hereafter described. The patient recovered twenty-thirtieths vision.

There remained a slight detachment of the retina on the nasal side. I consider this a truly remarkable illustration of conservative surgery.

Case 5. This case is of interest from several points of view. It is one of direct rupture of the sclerotic coat, something exceedingly rare and one which, from a medico-legal standpoint, is of the greatest importance, inasmuch as such an occurrence would be accepted with great skepticism, not only by a jury, but by expert witnesses themselves: Miss K., twenty-eight years of age, while walking in the dark from one room to another, struck her eye against the edge of an open door, causing a complete rupture of the sclerotic coat. The wound, which extended diagonally downward and outward, was three-quarters of an inch long, running directly over the ciliary body. There was profuse intraocular hemorrhage, causing a rapid increase of intraocular tension to the stage of stony hardness of the eyeball. Notwithstanding the oozing of blood from the wound, the eyeball had to be enucleated on account of the intense pain which could not be relieved by any other method. The eyes of this case were not prominent, and the mystery as to how this profound injury occurred has not yet been solved.

Direct rupture of the sclera is one of the rarest occurrences in ophthalmic practice. A general perusal of the literature on the subject reveals but one analagous case, that of L. Muller, quoted by Parsons (*Pathology of the Eye*, Vol. 4, page 1140). The mechanism of rupture of the sclerotic coat is fully described in this reference. On account of the natural protection of the eye by the projecting bony barrier around it, it would seem almost physically impossible for so large an object as the straight lines of a door to cause such an extensive injury, even with considerable violence, and in addition to this protection we have the density of the sclerotic tissue, and the curvature of the structure, both of which are important factors from a standpoint of resistance. Therefore, while such injuries are extremely rare and the exceptions, this case might well be considered as a precedent upon which to base the possibility of such an occurrence.

A Plea for Conservatism in Operative Interference.

From many text books the impression is still conveyed, that the prognosis of injuries within the "danger zone," a diameter of one-quarter of an inch encircling the cornea, is necessarily grave.

This has by no means been my experience, for I have found that there are other factors affecting the prognosis, which at times assume greater proportions than the location of the injury, and experience has caused me to occupy a position which can be defined as being midway between temporizing and hasty enucleation. I have furthermore found that in the case of incised wounds of the eyeball, even in the ciliary region, the ciliary involvement is often minimized or nil, provided the incision penetrates between the ciliary processes, while a diagonal cut increases the ciliary involvement by extending directly through one or more of the ciliary processes. This is a clinical fact which has often been substantiated in my experience, and upon which, in some cases, the prognosis will depend.

My remarks up to the present are applicable to penetrating wounds of the globe. The resistance of an eye containing a foreign body, or through which one has passed, is always lessened and requires surveillance, as it is likely, from the most trivial cause, to become seriously inflamed at some remote period.

The Control of Pain; the Prevention and Treatment of Complications; the Gifford Method of Administering Massive Doses of Salicylates.

In the case of injuries to the eye presenting themselves at once or soon after the traumatism, the relief of pain consists in applying cold compresses of 1 to 5,000 mercuric iodide solution, or the following antiphlogistic lotion:

Liquoris plumbi subacetatis dilute.....	3 ii
Tincturæ opii	
Tincturæ belladonnæ	aa 3 iss
Tincturæ arnicæ	3 i
Aquæ camphoræ	
Aquæ distillatæ	aa q. s. ad 3 iv
Misce.	

Internally I am accustomed to administer gray powder, grs. ii to 5, three times daily for the first two or three days, as I have found that it has a decided action in controlling pain and inflammation. In intractable cases, opium of course is necessary, while nervous excitement is controlled by the administration of bromides and veronal. After the second day, I resort to Gifford's method of administering the salicylates, one which I have found is not only deserving of commendation in sympathetic ophthalmia,

but also for the prevention of the same and the relief of pain. The method consists of administering massive doses of salicylates. I am in thorough accord with Gifford that at times the salicylates are far superior to mercury. The average patient will tolerate from 7 A. M. to 10 P. M. one grain to each pound of body weight. A patient not long ago weighing 180 pounds, taking 180 grains of the drug daily for a week without any untoward symptoms.*

There is one procedure in the treatment which I must mention, which has proven most satisfactory in a number of desperate cases—especially in corneal wounds—after the entangled iris has been freed from the wound and a pressure bandage applied for three or four days. An examination of the wound will show a slight line of newly formed epithelial tissue. At this stage I apply a small corneal electric cautery along the whole line of the wound. The healing which follows this treatment is remarkable, and I am sure that this procedure may be followed with safety.

Enucleation and Its Substitutes.

Whenever the removal of an injured eye is indicated and there are no contra-indications present for retaining the framework of the organ, I am accustomed to perform a Mules' operation. I have now performed over four hundred Mules' operations without a single case of sympathetic ophthalmia having followed the operation. I attribute this to four causes (1) rigid asepsis during the operation: (2) thorough evacuation of the scleral cup, especially the tissue of the uveal tract and optic nerve, not a vestige of either remaining before the insertion of the ball; (3) the employment of gold as an artificial vitreous, instead of glass, silver, paraffin, or other substance. It is well known that gold may remain in the eye without producing irritation as demonstrated by the reference of Parsons to the employment of gold wire by de Wecker for drainage purposes, a fact which has been substantiated in all the cases in which I have inserted gold balls. The present status of the operation, as well as of the delayed implantation of a gold ball will be found in my article on the subject read before the Ophthalmological Section of the Southern Medical Association at Atlanta, Ga., November 11th, 1908, and published in the *Ophthalmoscope* for January, 1909.

*I would suggest, however, that debilitated individuals with weakened heart action, be carefully observed while taking these massive doses of salicylates.

I am convinced more than ever that the Mules' operation is the one of election except in the presence of definite contra-indications, and in my experience the following six reasons, originally advanced by Mr. Mules, have proven, and still are, good and sufficient:

- (1) It secures a retention of the framework of the eye.
- (2) A firm, round globe forms a perfect support for an artificial eye.
- (3) Perfect harmony of muscular movement is retained.
- (4) When such a case is fitted with a selected eye, it defies detection.
- (5) There are no qualms as to the personal appearance of the patient.
- (6) There is no interference with the growth of the orbit.

THE MAJOR SMITH MODIFICATION OF THE MODERN CATARACT OPERATION—INTRA-CAPSULAR EXTRACTION OF THE CATARACTOUS LENS.

BY ROBERT SATTLER, M. D., CINCINNATI, OHIO.

From the time of Daviel, the subsequent evolution of cataract extraction reached the highest perfection through the genius of A. von Graefe. His method of modified linear extraction is the prototype from which has been evolved each and all of the various modifications which have been discovered or suggested, since its memorable introduction.

In a sweeping way, technical imperfections and difficulties were overcome, cumbersome instruments replaced by simpler ones, their number reduced, and all unnecessary manipulation discounted. The narrow knife, the safest location for and the character of the incision, the iridectomy—crowning **beneficent** achievements of the classic, are still retained, and as such looked upon as part of the modern, perfected method of linear extraction. Of the latter, the first and second steps have undergone advantageous and safer modifications. Iris incarceration at the angles of the wound, cystoid scarring of the incision are at present uncommon happenings. For the larger coloboma a smaller one is substituted. Asepsis and local anaesthesia have facilitated the technical difficulties and made the initiatory and second steps of the

Read at the meeting of the Academy of Medicine, Cincinnati, Ohio, October 4, 1909.

operation of less concern for the surgeon and for the patient, an almost painless experience.

The third movement or step, opening of the capsule and the expression of its contents, has not undergone the progressive evolution toward perfection, the lessening of dangers or the elimination of post-operative complications, which can be ascribed to the two preceding steps of cataract extraction. Nevertheless, important modifications, i. e., excision of the anterior capsule, with cystotome or capsule forceps, have been adopted, to prevent the dreaded post-operative complications which happen in spite of the most painstaking and skillful attention to details, and which always delay recovery if they do not reduce or frustrate entirely the restoration of useful vision. From the many suggestions as to this point, but three claim recognition. The first, long forgotten, was made by Hasner of Prague. He, to secure a permanent opening and prevent capsular thickening, ruptured the hyaloid immediately after extraction was completed. The second, was the daring and brilliant practice of H. A. Pagenstecher of Wiesbaden, who extracted the lens and in its unbroken capsule. The third, that mentioned already, the excision of the anterior capsule with capsule forceps has many to extol its advantages. The Pagenstechers had not many followers, owing, mainly to the greater technical difficulties, and the bugbear of loss of the vitreous.

In 1906, based upon an almost phenomenal experience with cataract extraction, Major Henry Smith, an English surgeon in India, proposed a radical modification of the third step or stage of extraction, and this was the complete removal of the lens within its intact capsule. A removal, indeed, but accomplished along wholly different lines from the eminently rational one of the Pagenstechers, Gradenigo, Andrews and others. At present, opinions are divided concerning the advisability of sanctioning the claims of so radical a modification with assumed greater technical difficulties in its execution, even though it offered almost certain means by which the troublesome post-operative complications could be permanently prevented.

Technically speaking the first and second steps of cataract extraction are the difficult ones, the third, or capsule opening and lens delivery are more easily accomplished even on the part of those of lesser experience and proficiency. The Major Smith modification does not, so far as I infer, affect the incision and iridectomy

except as to minor details, and leaves these to the choice and judgment of the operator. Its main attack is the capsule and the purpose of his discovery is its complete and permanent removal. One must have personal proof that this can be done, in order to become fully convinced not only of its expediency and justifiability, but for the reason that its final evolution in technical perfection may place it on a similar level of safety and precision with the two preceding steps of extraction. In other words, one must be a looker on at a successful and uncomplicated delivery of a lens within its unbroken capsule and be amazed beyond expression that the third step can be made so facile, so smooth and clean, and the eye afterwards show little or no evidence of having passed through this ordeal. Compare this, the passage of a lens within its capsule, a smooth convex often globular structure, with the forced, often jerky extrusion of a hard and irregular mass of lens tissue, not smooth and often broken up in fragments, and not least, the constant anxiety of the operator, that in spite of the best his skill and experience can accomplish, he may not succeed in removing all of the lens substance. What is even more surprising is that few or no complaints of discomfort accompany or follow the complete joint removal of lens and capsule, also that iritis and iridochoroiditis are uncommon. Another gratifying disclosure of this important modification is that removal of immature cataract can be more safely undertaken and accomplished than by the former plan of opening the capsule with forceps or cystotome, which experience has taught us, to our sorrow, may prove not only an inexpedient but in some cases even a disastrous venture.

My experience with the Smith modification as an integral part of modern cataract extraction is a recent one. My first series of ten unselected cases, began last June after a visit to Dayton, Ohio. Through the courtesy of Dr. Greene, I enjoyed at that time my first opportunity to witness a Smith intra-capsular extraction. Dr. Horace Bonner made the first operation at the St. Elizabeth Hospital and Dr. Greene followed with five extractions in the hospital ward of the Soldier's Home. All were done with exceptional skill and precision as well as despatch, and afforded me one of the most gratifying and instructive of demonstrations.

I will now briefly summarize the more salient features and results of my first small series done during the months of June

and July, allowing a longer time period before final conclusions are stated.

My first case, a man aged 52, with immature cataract, $V = 0.1$, upon whom I had performed a small preliminary iridectomy four weeks previously. The lens rotated in response to the pressure movement applied with the tip of the blunt hook and easy delivery of a large, semi-transparent rounded lens, within its unbroken capsule, brought about. Absolutely no complaint immediately after or subsequently. Ten days after operation vision was 0.9. Since then without appreciable cause it has declined to 0.8 and there remained.

The second case was a woman, age 72, with unorgagnian cataract. The amber colored nucleus could be distinctly made out floating in obedience to movements of the head in the liquid corticalis. It was a novel sight to watch the rotation of this elastic, globular structure, its changing constrictions as it came into the wound and the slow peeling off of the zonula and final delivery without loss of the vitreous. Healing was uneventful and $V = 0.7$ was recovered.

The third case was a hypermature sclerosed cataract, the pressure movements applied to the lower border of the cornea ruptured the zonula at this region. This was made evident to us by a higher sliding up of the upper border of the lens. It was impossible to effect the rotation and, fearing a large loss of the vitreous the flat spoon was applied to the posterior wound margin and with pressure of the blunt-hook below, the lens was delivered in its unbroken capsule, but with considerable loss of the vitreous. No reaction or pain followed, but the healing of the wound was delayed for weeks, with final recovery of 0.2 vision. The lens was hard, almost black, and its surfaces flat, with sharp margin.

The other seven cases had so much in common that I mention them collectively. In four, rotation was impossible, but the lens was delivered in all within its capsule but with loss of vitreous. In the remaining three cases, the exit of the lens in its capsule was uncomplicated, with rotation and no loss of vitreous. In the last case, only, the lens did not rotate (immature, sclerosed lens). The zonula ruptured early, and the lens was removed with skeleton spoon amidst rupture of the capsule and retention of a mass of broken-off lens. Healing was tardy, at present eye free from irritation.

$V=0.1$. This was the lowest degree of visual restoration of the series.

That the modern perfected operation of extraction which includes opening of capsule and expression of its contents, performed by those who have acquired skill and proficiency, is safe and yields excellent results in its execution, and that the percentage of actual losses is very small, is confirmed by common and individual experience. This is the reason why so many are loath to abandon a tried and tested measure, or even to substitute, for some cases the joint removal of lens and capsule for capsule laceration and expression. The following brief conclusions state my opinion, based upon a limited experience with this most rational modification of the cardinal operation of ophthalmic surgery.

An impartial judgment of the merits of the Smith modification must assign to it a place of permanent, practical importance as a desirable integral part of the modern operation, which if not indicated for all, is certainly applicable for a large contingent, and in particular, for extraction of immature cataract.

The discovery that the lens can be removed in its unbroken capsule through pressure movements made by means of the tip of a large blunt hook, applied along the inferior and lateral border of the cornea—furthermore that the intentional purpose of this applied pressure is to rupture the zonula first at this point, then to tilt up and forwards the lower or inferior lens border and thus cause the entire lens to rotate on a horizontal axis with subsequent tearing off of its upper half linear attachment, represents the full meanings of this modification. The passage through the wound area does not bruise, but owing to the smoothness of its capsule is extruded with more uniform pressure. If successfully accomplished, or without loss of vitreous, it is a realization of despatch and perfection that can evoke only wonder and gratitude from us all and certainly unstinted meed of praise for the one who discovered it.

i. The Major Smith modification of cataract extraction substitutes a completely new movement or step requiring a different technic for its successful execution, the aim or purpose of which is the complete joint removal of the lens and its capsule.

ii. It is a new discovery and simplifies the third step or stage of extraction. Its execution is more difficult and an operator must face the imminent danger of loss of vitreous in every case.

iii. It affords a clearer field of operation. If the lens rotates

as a solid body, its passage is as short and smooth and clean as the similar movement with capsule opening and the breaking of the lens substance into large and smaller masses, is cloudy and lengthy. Besides one can never be absolutely certain that masses of lens substance are not retained within or adhere to the capsule, a retention which invites post-operative complications or indefinitely prolongs recovery.

iv. If the lens cannot be made to rotate and the pressure manipulation with the blunt-hook succeeds only in rupturing the zonula below, this made evident to the operator by his ability to push the lens higher into the wound while at the same time he also places greater tension on the zonula above with imminent peril of rupture. If this happens, all further attempts must cease and the lens be shoved up and out of the eye with the flat spoon placed against the posterior wound surface and careful lateral and upward pressure applied with the blunt-hook.

v. The Smith modification is a most valuable supplementary measure for the intra-capsular removal after the plan of the Pagenstecher's. If the zonula is first broken below, the subsequent detachment of the zonula permits greater and more uniform pressure to be applied from below upwards and makes this excellent modification an easier and more certain one.

vi. The signal feature of this modification is the rotation of the lens. This cannot be counted upon to take place with certainty in flat, thin, sclerosed lenses. The more the lens approaches or retains a convex or rounded shape, the more certainly can rotation be expected to take place.

AN OPERATION FOR ENUCLEATION OF THE EYE.

By M. IVERSEN, A. M., M. D.

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Enucleation of the eye has been preferred to extirpation ever since the time of Bonnet. By extirpation the entire contents of the orbit were removed by the knife, but at the present time this operation is performed only in case of malignant tumor not operable in any other way.

Neurotomia Optica Ciliaris.

An operation intended to minimize the extent of mutilation of the parts affected by simply cutting the nerves is no longer

employed, as it fails to prevent sympathetic inflammation, the only indication for its use. Neither is exenteration or evisceration a certain preventive of sympathetic inflammation, and as an eviscerated eyeball will degenerate, it will consequently lose its trophic influence on the orbit. If this were not the case it would be a desirable operation in children. It has further been shown that healed in glass or metal bulbs are almost invariably expelled in a few months, even though healing occurred by primary intent, to implant living tissues for prosthesis is dangerous and useless. They will at the best become resorbed. Therefore these procedures are hardly entitled to a place in rational surgery.

The method of enucleation which I employ requires from three to seven minutes. Therefore local anesthesia with cocain and adrenalin may suffice, but this is hardly less dangerous than general anesthesia; hence I employ the latter, adding a few drops of a well-diluted adrenalin solution hypodermatically so as to insure an almost bloodless operation.

The instruments required are an eye speculum, four self-retaining fixation forceps (which may be used as artery forceps as well), curved blunt-pointed scissors, a squint hook, needle holder and suture material.

In enucleating the right eye the operator stands in front of the patient. In operating on the left eye the operator will stand immediately behind the patient. It is unwise to evince any pretensions to ambidexterity in the performance of delicate work.

After inserting the speculum, the first step in the operation is to grasp the conjunctiva and Tenon's capsule internally and externally, with two self-retaining fixation forceps, about 3 to 4 mm. from the corneal border. The assistant takes hold of these and steadies the eye. With a third forceps a fold of the conjunctiva is lifted up over the internal rectus and snipped with curved scissors. From here dissection is continued all the way around as close to the corneal border as possible. Tenon's capsule is opened in the same way, and dissected back to near equator. The internal rectus is then sought for with the tendon hook, which is passed beneath it and a stitch taken in it external to the hook with chloroform-iodised catgut No. 1. Forceps are applied to the long end of the suture. The tendon is then severed with a pair of scissors, internal to the hook, and the tendon stub grasped with a forceps.

The assistant now removes the conjunctival forceps on this side of the eye and grasps the forceps on the eyeball. The operator passes to the other recti, hooks them, picks them up with the same needle and suture, and divides one after the other. When the external rectus is reached the forceps is removed from the conjunctiva to the tendon stump of this muscle. The operator now takes the two forceps in his left hand, raises the eye, thus placing the optic nerve on the stretch, and passes a pair of closed enucleation scissors, with the concavity toward the eyeball, beneath the eye, feeling for the optic nerve; it is grasped with the point of the scissors, which are pressed downward, and the nerve severed as deep as possible. If this is done, it will not be necessary to further shorten it later when it would be very difficult to locate. The eye now remains attached to the oblique muscles only. The operator removes the inner forceps, while with the outer the eye is projected from the socket and everted, thus exposing the insertions of the oblique muscles, which are then divided. These are not taken up by the suture.

Hemorrhage is arrested by pressure or hot water tampons. Should bleeding continue the bleeding points should be found and ligated. The recti muscles are then knit together by the suture, on which they have been gathered. They are lifted well out and united farther back also with a few fine stitches. This will provide a movable eye bottom for the glass eye to rest upon. The conjunctiva is united over the *composite muscle stump* by a loosely drawn purse suture. Finally, the eye is washed out with a warm normal salt solution.

The after-treatment is very simple. Healing usually occurs in about five days and there is very little reaction. A few drops of a one-half of one per cent solution of protargol instilled three times a day will prevent complications. The eyelids should not be pressed in nor should the eye be filled with tampons, as the muscles are compressed thereby, causing a deep concavity, with very little mobility for the glass eye.

In employing my method of operating the composite tendon stump will be quite prominent, so much so, that on a certain occasion it even occurred to a reputable ophthalmologist that some of the eyeball might have been retained, leading him to propose to cut down for its removal.

My technic differs somewhat from the older methods. The Stober operation does not allow the optic nerve to be cut sufficiently deep behind the eye, as the loosened eye is too slippery to be held far enough forward by the speculum alone. This may be effected by specially constructed instruments and by the Arlt operation, which is more rapid, and, therefore, employed by some, but it is less scientific, as no tendon hooks are used. None of these operations, however, unites the tendon stump into a regular composite tendon cone, which fact is their principal shortcoming. To pick up the divided muscles after the operation would be tedious, is impracticable, and, therefore, not done. My technic is rapid, it prevents the swinging and swiveling of the eye, which causes so much loss of time and is responsible for many miscuts. It demands, however, the aid of an intelligent, trained assistant, and to facilitate the instruction of the latter led me to prepare this paper.

KERATOPLASTY WITH THE RABBIT'S CORNEA.

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NEW YORK.

On October 6, 1909, I performed this operation in the presence of a large number of the members of the American Academy of Ophthalmology and Oto-Laryngology at the New York Post-Graduate Medical School and Hospital, and on the following 18th of the month, I presented the patient to the Ophthalmic Section of the New York Academy of Medicine with the following remarks:

In presenting this patient to the section, may I ask if this is not a new procedure in Keratoplasty, and that this operation may yet be taken from the laboratory, and have its place in Ophthalmic Surgery the same as that of the transplantation of the conjunctiva to cover a necrosis of the cornea from ulceration? I think it may be granted that these grafts from the rabbit's cornea, with reasonable care and skill in the operation, will live and become a part of the cornea without any deformity and give a permanent tissue that will resist the intraocular pressure. I cannot refer you to the work of others in this operation, except that referred to by Knapp, namely, Czermack's "Ophthalmic Operations," on page 614, as I do not know of any cases published in this country except those of my own. Unless we accept the report of a gentleman on the

West Side who reported his case in the lay papers for the benefit of the public, if not for himself. But all the cases heretofore published have been for the purpose of the restoration of vision in one eye in which the sight has been destroyed with the formation of a dense white leucoma, following destructive inflammation of the cornea. On the other hand, in this case I have endeavored to replace lost tissue in the cornea following a deep inflammatory condition from a large traumatic ulcer. This, at one time, presented a prominent staphyloma of the lower part of the cornea. Hence it seems to me that, unless we have too large a loss of the cornea tissue, that the neerosis may be carefully removed by the instrument of Von Hippel, and then a similar piece removed from the rabbit's cornea and quickly and safely replaced in the human eye. In Norris and Oliver's System of the Diseases of the Eye, we find an excellent article by Herman Knapp, entitled, "Operations Usually Performed in Eye Surgery," on page 831,—we have Keratoplasty, in which Knapp states that in 1856, Nussbaum inserted a disk of glass after removing a portion of the cornea. The vision through this was useful for a short time and then the disk of glass was "cast off." Many others attempted similar procedures, using the cornea of animals and of man, until 1888, when it was "very little heard of." All these experiments seem to prove one fact, that these transplanted portions of healthy cornea can be transferred to the human cornea and live, but that they remain transparent "only for a time." Quoting still from Knapp's article we find that after Von Hippel devised his trephine, he showed a patient at the Heidelberg Ophthalmological Society on whom he had performed a keratoplast one year previously and that had remained tolerably transparent for that time with useful sight. Furthermore, Knapp says, the operation is not indicated in total leucoma nor in partial leucoma when the periphery of the cornea is sufficiently clear to admit of an artificial pupil, etc. Finally he states that, "if even a temporary success, useful vision for some years, could be expected, the operation would go out of the laboratory into the practice of ophthalmology."

A few words in reference to my own cases and the procedure as I have performed it, although I have not been fortunate enough to see the operation in the hands of others. Yet in my operations I can state that all the grafts have lived, and as far as I know have remained "*in situ*" permanently. My first attempt in this

operation was on a woman, totally blind from dense leucoma of both cornea, covering the entire membrane. Both of these grafts were living when I last saw the patient some months after. In the first eye we had no improvement, but on the second operation on the left eye, the graft remained, not transparent but translucent so that she could recognize large objects and attend to her home work about a small apartment. In the third operation I had the same viability of the graft, but on cutting away the cornea I found a dense mass of pigment beneath; this no doubt, prevented any improvement of vision, but demonstrated again that the graft would live. It was the partial success of these three attempts that when this case presented at my clinic, I thought that here would be a suitable case for transplantation, for an entirely different purpose. Now you will note that this man has no vision in this eye, due to the complete anterior synechia of the iris to the lower surface of the cornea. But I hope in time to restore some useful vision by a small iridectomy upwards. Now as to the technique of the operation:

Strict antisepsis must be used in all steps, but at the same time we must remember to handle the rabbit's cornea as little as possible and to transplant it directly from the rabbit to the patient, as follows: The patient is prepared for operation, the eye-lids and brow are carefully washed and cocaine instilled, one drop of 4% solution every minute until 6 or 7 have been used. The eye is opened with the specula and as the eye is steadied with the fixation forceps the trephine is applied directly over the portion desired, using a trephine, 4 or 5 mm. in diameter, and the flange or guard placed about 3 mm. above the cutting edge, so it cannot penetrate the eye too deeply. This portion is then cut by touching the spring very lightly, and then the cut portion is removed. In the meantime an assistant rolls the rabbit tightly in a towel so it cannot move. Cocaine is applied to the eye, and the rabbit is laid close to the patient. We then cut a similar portion from the rabbit's cornea and taking it up with very fine forceps it is rapidly applied to the opening made in the patient's cornea. The lid is then carefully drawn down over the graft and the bandage applied. The patient is then placed in bed and kept quiet for two or three days; the bandage is not removed for at least 6 or 7 days. Such is the method that I have employed in performing this interesting operation, and I hope to continue it in all cases that may promise

the least possible success, as I believe the operation will yet find its place in practical ophthalmic surgery.

TEACHING OF OPHTHALMOSCOPY TO UNDER-GRADUATES AND GRADUATED IN MEDICINE.

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The subject of teaching Ophthalmoscopy to under-graduates and graduates in medicine has been selected because the use of such an inexpensive, simple and indispensable instrument as the ophthalmoscope is too much neglected. I am willing to admit that ophthalmoscopy is taught in most medical schools, but from a large experience with post-graduate students I know that practical results are seldom obtained. It is rare to meet a post-graduate student who is able to examine the fundus of the normal eye with even a dilated pupil. If the under-graduate could use the Ophthalmoscope in a practical manner the last year of his medical course, his post-graduate work would be simplified and more productive of results.

Is Ophthalmoscopy too deep a subject for the under-graduate?

I believe Ophthalmoscopy is one of the simplest and most interesting subjects for the under-graduate as soon as he can use the Ophthalmoscope to see and describe the details of the fundus oculi and this requires comparatively little practice and technique. The post-graduate student becomes an enthusiast in the revelations of the normal fundus.

What are common diseases of the eye?

From an oculist's standpoint, diseases of the eye revealed in the fundus are not uncommon. If the family physician could use the ophthalmoscope he would not be compelled to call the common diseases only those found anterior to the lens. He would find many interesting cases of disease of the eye that occur in connection with other ailments if he could only see them. Diseases that he could see and diagnose he could treat with satisfaction to himself and patient. Gross pathological lesions of the fundus are not difficult to diagnose if they can be seen and, if so, text books on ophthalmology are interesting and of great value, otherwise they are nearly useless.

Would ophthalmoscopy be of any value to the Senior Medical Student?

Ophthalmoscopy would be of very great value to the undergraduate, not only to enable him to take advantage of the ophthalmic clinic but also of many cases in his general medical, obstetrical, neurological, or venereal clinics. If he could use the ophthalmoscope in a practical manner in all of these clinics when the opportunity presented itself, ophthalmoscopy would be very interesting.

Doctors as a general rule know nothing of Ophthalmoscopy.

It is to be regretted that the general physician cannot use the ophthalmoscope and make a creditable examination of the eye. It is hardly fair to the public that he can only see the so-called common or external diseases of the eye, in view of the fact that ophthalmoscopy can be made a simple and easy art.

Methods of teaching Ophthalmoscopy.

Instructors of Ophthalmology have their special systems of teaching Ophthalmoscopy. Some divide the class in small sections and have them practice on clinical patients with dilated pupils or have the students practice on each other. The first method is difficult and unsatisfactory, first, because the class must be very small; second, the patients will not always submit; third, it is not always possible to get the kind of material necessary; fourth, it is difficult with this method to get enough teachers that are capable of imparting the proper knowledge on the subject. From my experience with post-graduates I believe the methods that have been practiced in the past can be improved upon. I am aware that medical schools do not devote enough time to ophthalmology, but the time is being lengthened and we may expect better work.

The method I recommend for teaching this subject is the use of my improved schematic eye, which has two normal and twenty-two pathological pictures, with full instructions for beginners. I would have the student control and master his light by practicing on the schematic eye, in his room a few minutes each day. The schematic eye is provided with an iris diaphragm, and the student can make at will a pupil as large as thirty or as small as two millimeters. It is surprising how soon the student will master his light and be able to examine the pictures in the

schematic eye with a small pupil. His work is made simple and easy by having him begin with a large pupil and gradually reduce its size. After he has sufficient control of the light and can see and describe the details of the fundus in the schematic eye with a small pupil, he will have little difficulty in seeing and describing the details of the normal eye. When the student can make out the details of the normal fundus, he will be interested in the subject and will wish to know the ocular lesions often found in general medical or surgical cases. The only thing remaining for the under-graduate after he can recognize the fundus of the eye will be to explain to him the gross pathological lesions that may appear there in cases that occur in general practice. This can best be done with the opaque projector. The pictures can be carefully selected and we can show any kind and any number of cases. If the diseases can be satisfactorily demonstrated and the student can give a description and draw a picture of the gross pathological lesions at the end of his course, he will certainly recognize such pictures when they present themselves to him later in his general practice. In a surprisingly short time, with this method, the undergraduate would be able to take advantage of the dark room cases. The work is simplified and one teacher can teach any number of students until they are ready for the dark room. If he has mastered the schematic eye, little trouble will be experienced with clinical cases in the dark room with small classes. The ophthalmoscope being the foundation of Ophthalmology, it is desirable that the student expecting to accomplish anything practical in Ophthalmology should master the instrument early in his course. One should not attempt to make oculists of undergraduates, but it is imperative that the family physician be able to diagnose gross pathological lesions of the interior of the eye as readily as he can detect them in other parts of the body, if he expects to do justice to his calling.

If the society will permit me to diverge from the subject, I would recommend refraction and retinoscopy to the senior medical student. This can be accomplished if the medical schools will accept the recommendation of the committee from the American Medical Society that more compulsory time be given to Ophthalmology. If this is done there will not be any legislation against opticians. The family physician will then attend to ordinary errors of refraction and the traveling optician will have no vocation.

THE OCULAR SYMPTOMS IN PELLAGRA.*

BY E. MIKELL WHALEY, M. D.,

COLUMBIA, S. C.

The results reported were compiled from the examination of thirty-five pellagrins and fifty per cent of these were insane, thus we would expect to find the nervous elements much in evidence. The examination as to field and color, it was impossible to get. It is rather disappointing that I cannot make out but one ocular symptom that seems to be characteristic of this disease, and on account of the small number of cases would not like to be too sanguine as to its being pathognomonic of pellagra. Still, Lombrose seemed to find it, though he did not state to what extent. This symptom appears as if the retinae were thickened and gives the fundus reflex a peculiar indistinct yellowish color, and is not so pronounced as the senile reflex.

The dilatation of the pupil was not so prevalent as we expected to find from the reports of our Italian friends. This may be accounted for by the fact that observations in different localities make some variation in the symptoms, and the season has also been seen to affect the kind and virulence of the attack.

As stated, the number of cases examined was thirty-five, their ages varying from eight to seventy-six years, only two of whom showed normal eyes.

The appearance of the patients was that they did not carry their upper lids as high as they should, thereby giving the appearance of general lassitude. This dyskinesis of the upper lids in these subjects is not due to paralysis; it is voluntary and due to the fear of light. If unilateral and real care must be taken with the examination to exclude paresis from other cause, ptosis due to ptomaine poisoning, fungi lead, and so forth, must be eliminated.

Congenital ptosis will be confusing unless we bear in mind that it is permanent, usually bilateral, and often incomplete.

If you can make the pellagrin look up he will not correct the lid drop by throwing the head back, unless there be other cause present, and an involuntary ptosis exist.

Frequently, on raising the patient's head, the lid or lids, as the case may be, will descend lower.

All pellagrins are unresponsive and no field examination could be made; with few exceptions the examination had to be made

*Read at the Interstate Conference on Pellagra, November, 1909.

while the patient was in bed. The dilated pupil occurred bilaterally in three cases only, unilaterally in two cases, and one of the bilateral cases was myopic. Two cases resisted the action of homatropine for two hours, four resisted it less strenuously, while the others reacted in the usual twenty minutes. Hypersensitiveness to light contracted pupils was the rule. (This contraction was not meant to indicate that they were pin-point pupils, but were smaller than normal.)

Shallow anterior chambers were found in thirty-three per cent of the cases. Strabismus could not be detected when there was not other evident cause. Where the gastro-intestinal symptoms were very pronounced and the inflammation extended to the mouth and post-nasal space, an obstruction of the lachrymal duct was found, due to continuity of surface. This was noted in five cases, all of which had the mucous membranes very much affected by the disease. Photophobia of slight degree, without the inflammatory changes which usually accompany this condition, was present in six cases.

The findings as tabulated are as follows:

Lids: Paretic, one; lachrymation, two; dacryosystitis, two; conjunctivitis, two; muddy conjunctivæ, two; jaundiced conjunctivæ, three; obstruction of lachrymal duct, five.

Corneal Abnormalities: Ulcer, four; superficial inflammation, two; increased sensibility, two; subnormal sensibility, seven.

Muscles: Paresis (Rt. rectus), one; nystagmus, one.

Anterior Chamber: Shallow, twelve; deep, one.

Iris: Iritis serous, one; sluggish reaction, to light, six; hyper-sensitive, four; photophobia, six; reaction to homatropine, slow, four; prompt, one; spastic reaction to light, two.

Pupils: Unilaterally dilated, two; bilaterally contracted, three; bilaterally dilated, three; Argyle Robertson, one.

Tension: Plus bilateral, one, plus unilateral (O. S.), two.

Fundus: Retinitis, two; detached retina, one; optic atrophy, three; optic neuritis, three.

Lens: Cataract bilateral, three; unilateral, two; cloudy lens, one.

Arteriosclerosis, fifteen.

After examining somewhat over half of these cases, I found that there was most common a dilation of the retinal veins and a somewhat yellowish reflex from the retina that I do not remember seeing elsewhere. This appearance is hard to describe, appearing as a thickening of the retina itself.

The arteriosclerosis which appears in so many of the cases is of every stage and occurs in the young as well as the older.

Five additional cases examined gave the following:

No. 1, L. B., bilateral pterygia, pupils quick and contracted, arcus senilis, no inequality. Rt., reacted less promptly to homatropine. Optic neuritis; veins as usual.

No. 2, L. M., corneal sensation subnormal; anterior chamber shallow; retinitis O. S.

No. 3, Dr. P., corneal ulcer, left eye.

No. 4, R. A., sensitive to light, muddy conjunctivæ O. D.; iris slow to homatropine; opaque nerve fibers, O. S., temporal side; veins, atony.

No. 5, D. S., pupils sluggish; photophobia; sensory reflex absent; chorio-retinitis; arteriosclerosis; veins, atony.

The following report is extracted from "Pellagra" by Prof. A. Marie, of Paris, prefaced by Professor Lombrose; authorized translation from the French by C. H. Lavinder, M. D., U. S. P. H. and M. H. Service, and J. W. Babcock, M. D., Physician and Superintendent, State Hospital for the Insane, Columbia, S. C.:

"Eye Symptoms: Remarkable peculiarities are found in the eyes of the pellagrous: a falling of the superciliary fold is very frequent (28 times). In many cases is found also a marked unilateral injection of the conjunctivæ. These are observations which remind one of general paresis, and show, along with other manifestations, how frequently the lesions of the nervous system may be unilateral, especially lesions of the sympathetic system.

Very often, also (74 cases), mydriasis of the two sides is found. Miosis is more rare and when found is more usual in the aged. Cases of blepharitis are not rare, as was shown by the Piedmont commission. Often, also, diplopia, photophobia and synchysis are found. Many pellagrins remain for years with their eyes closed for fear of the light. Early cataracts are found among the pellagrous, and pterygium is not infrequent. Dr. Ottolengui, with Professor Manfredi and Dr. Flarer, have made ophthalmic studies on pellagrins. Their results are given in the following table:

Number examined	36
Depth of eye normal	12
Changes in the retina	15
Atrophy of arteries	12
Anomalies in fundus of the left eye.....	1

Anomalies in fundus of right eye.....	6
Atrophy of optic nerve	3
Increase of pigment	3
Dilatation of the veins	1

Fifteen of these cases showed retinal changes by a yellow or gray reflex in one or both eyes—a sign of precocious senility; it is of interest to note that there were three cases of white atrophy of the papillæ, among which was one case of retino-choroiditis in an advanced stage. Ottolengui found also in three pellagrins one light case of papillitis, more pronounced in the left eye; in the second case pronounced gray atrophy and diffuse retino-choroiditis of the two sides; the third was normal. It is of interest to note the observation that in several individuals the ocular fundus differed on the two sides. This, however, cannot be given as a reason for the numerous pupillary inequalities, since these are noted in individuals who show a normal fundus. However, the unilateral anomalies of the fundus as well as those of the pupils predominate in the right eye and consist in lesions of the arterial vessels with pupillary and retinal changes. Rampoldi observed pellagrous ocular troubles principally in the autumn or the spring, and found that they consisted of organic lesions rather than functional disorders. The retina and optic nerve show more than any other part of the eye the pellagrous cachexia, next come the cornea and lens; finally the choroid and vitreous body. Hemeralopia and pigmentary retinitis are not rare. Torpid ulcers of the cornea are found with essential hypotonus of the bulb and scintillating synchysis of the vitreous.”

The numerous pupil inequalities in the above report are probably due to trophic disturbances, and this will also account for the slow reaction of the iris to drugs that are dependent upon the local nerve endings. We must also take into consideration that this report does not mention the number of cases examined when seventy-four dilatations were reported and, consequently, we cannot formulate any percentage as to these findings. It seems that the thirty-nine cases examined by ophthalmologists were only considered from the anomalies and abnormalities in the interior of the eye. The pupillary reaction and external eye diseases were not sufficiently prominent or intentionally not reported.

We are looking for light, and I hope this will stimulate research and assist in further investigation.

Reports of Societies

ACADEMY OF OPHTHALMOLOGY AND OTO-LARYNG- OLOGY.

The fourteenth annual meeting of this academy was held in New York City, at Hotel Astor, on October 4, 5 and 6, 1909, there being a large and enthusiastic attendance. Otto J. Stein, of Chicago, presided.

The following resolution, presented by Dr. F. Park Lewis, of Buffalo, was adopted:

Whereas, A large portion of the disasters suffered by the human eyes are preventable, and

Whereas, It is to the physician, and especially to the Ophthalmologist, that social and economic organizations look for information and advice as to the preventive measures that should be employed.

RESOLVED, That a committee be appointed representing this association, to co-operate with popular and other medical bodies, for the purpose of securing information and devising measures for the prevention of avoidable disasters which may result in blindness.

Dr. Stein, in the presidential address, spoke of the encouragement which this society gives to the many in the flotsam and jetsam of the great international American medical profession of something like two hundred thousand men and women, who desire to progress, who have by nature ability; who have good training and are imbued with the desire to do right; but who, owing to circumstances, find it difficult to receive that encouragement, inspiration or opportunity to further progress which they might feel at all times from their more fortunate confreres.

"The Relation of the Specialist to the Community."

Referring to the criticism of the ultra-orthodox in regard to the association under this organization of the eye with the ear, nose and throat specialists as something reprehensible, Dr. Stein reminded those of such opinion that sentiment and individual prejudice must not be studied in place of conditions. Nature makes no distinction, and while there exists an intimacy between the various organs and tissues of the whole body, neighboring organs

are more subject to influence, and that is why the eyes, the ears, the nose and the throat, with their neighboring adnexa and the brain are of so great importance to those who profess to follow the medical and surgical specialty of any of these organs. This intimacy between adjacent organs has led the specialist into the study and investigation of contiguous parts, and in this manner has been developed the new knowledge of bronchoscopy, esophagoscopy and gastroscopy; the eye developments in the presence of certain nasal sinus affections and the brain changes in the presence of certain ear affections. He who has the benefit of a thorough understanding of all these organs is in a better position to command attention and respect. The influence of an organization like this should be felt in the business world, where so many thousands of people require the best of hygienic and sanitary surroundings to keep them free from the dangers that beset the colonization of labor. The merchant and manufacturer are interested in that they are taught how to heat, ventilate and light their work rooms, and in the manufacture of lead and tobacco that blindness often results and its dangers can be lessened or averted by his better understanding. The excellency and success of railroads depend on the eyes and ears of their employees. Insurance companies already recognize the dangers of suppurative ear affections, and they will soon so regard certain suppurative nasal sinus diseases. Employes should learn to distrust alcohol in its many forms, such as Columbia spirits or wood alcohol, bay rum, Jamaca ginger and many of the patent medicines, because of the danger of blindness from their inordinate use. The horizon of conception and understanding of members of this society should not be limited to things medical, but their voices should be raised for the development of all mankind. Steps should be taken to secure a larger audience for the papers discussing economic problems, such as ophthalmia neonatorum, restriction of noises, the mitigation of street dust, the clarification of the atmosphere, examination of school children for defective vision, hearing and nasal breathing. It is the voice of such organizations that federal legislators must hear in order to arouse them to enact laws for the correction of these evils. The secular press is the best avenue for the dissemination of such knowledge, of course under honest and careful censorship, eliminating sensationalism and personalities. Bulletins and pamphlets issued by the state and municipal health boards are also commended.

The speaker suggested the creation of a committee for the purpose of recommending ways and means to disseminate such reports and opinions of this society as might be of interest to the general public.

"The Social, Hygienic and Economic Aspects of the Eye, Ear, Nose and Throat"

was the subject of a symposium, the discussion of which occupied the balance of the first session. Dr. Percy Friedenbergr spoke on "The Relation of the Specialist to the Community." He said, in part: The physicians who have intensified their work and have been at pains to acquire particular knowledge of a small field, must not feel that knowledge is a sword in the struggle for position, but a trust fund to be used for those who have most need of it. The progress of medicine through the ages has been on the one hand material—technical means and methods, discoveries of drugs, invention of instruments—and on the other hand spiritual, so that we see through the ages the medical man developing from the priest, the magician, the soothsayer, and becoming a scientific man, a member of a large social organization, cooperating with what the old medicine man would have called "laymen," but who are recognized today as the physician's assistants in one of the greatest tasks medicine has to perform, the preservation of health. It is the educator, the legislator, the social student and the business man with whom we must work hand in hand, to whom we have to give respect for the special knowledge they have, and whom we should be ready to support with our own knowledge when the time comes. The possibilities are only being touched in the eye and ear infirmary and kindred institutions. These must be devoted to the cure of disease, but they should be as well devoted to the prevention of disease and loss of sight. There must be training schools if the work is to be spread as it should be. Otherwise the specialist is a mere individual, each attending to his handful of patients, teaching and giving advice to the individual; whereas that advice should be systematized, syndicated, spread wide and given to the masses in such a way as to be of most benefit. Our post graduate training in the eye should be given not only to medical men but to teachers, engineers and architects, that they may learn what is needed by the eye patient; and we must learn from them the difficulties which confront the architect and engineer.

We must learn also from those who instruct the blind. The oculist must be in position to advise the mother of a blind child how to teach that child. The teaching duties of the specialist apply to the generation which is to follow him. His special knowledge is not a private possession. It is learned from those who have gone before, and it is his duty to pass it on to those who come after. The young man is dependent on his superiors in experience and skill to make him their equal. The opportunity is great for the man who has had his chance to build up a school to perpetuate his skill and increase his fame, to add to the name of specialist the name of a great teacher. The young men who come into the infirmaries or on the house staff must be sent out trained not only to do good work, but with the aims and ideas presented in the president's address—the idea that the specialist is in the service of the community, and that there are many important questions which he can solve or help to solve in the community.

Dr. Luther H. Gulick, formerly physical instructor in the New York schools, said that too much of the medical inspection now carried out in the schools consists of diagnosis and nothing further. There must be carried out in the American cities some scheme by which, having made the diagnosis, the treatment must follow, so the results will actually come to the child.

Mr. L. B. Marks, of New York City, president of the Society of Illuminating Engineers, said that with the growing introduction of light sources, such as the Tungsten burner, the strain on the eye becomes greater and greater, and we are, if anything, becoming more prodigal of our eyesight. He thought it a duty of the oculist to take a hand in educating the public in the proper use of artificial light. One of the most important phases of this is the intrinsic brightness of the light source. The new born babe, in the homes of millionaires and in the homes of the poor, faces light that has an intrinsic brightness of over a thousand times that of daylight illumination through a ground glass window. The intensity of the illumination of an unguarded incandescent light flame is enormous compared with the diffusing surface of a window. From infancy to old age the eyes are being constantly subjected to a high intrinsic brightness of artificial light, the flaming arc, the quartz lamp, etc. It is most important to diffuse our light. The society of illuminating engineers is up against a stone wall in almost every direction, not because there is no desire to

cooperate with them, but because there is an apathy on the part of architects, on the part of the engineers who have not studied illuminating, on the part of the oculists, because they do not as yet appreciate the importance of the study of the engineering side of the question. In a recent investigation the speaker had found that a great deal of difficulty with the eyes was due to reflected light from the object viewed, which was ten times as great as would be needed to satisfactorily illuminate the object. Mr. Marks made a plea for the cooperation of the oculist with the illuminating engineer, that those who are called upon to design the illumination of our schools, our factories and our libraries may know how to apply some of the principles with which the oculist is familiar.

Dr. John E. Weeks, of New York, said he thought we were taking a step in advance when we find men who term themselves "illuminating engineers." One of the reasons that school buildings are so badly lighted is that architects and engineers do not make themselves familiar with what has been done by the ophthalmologist. The question of light has been studied for a long time, especially by ophthalmologists in Germany, and by those who have given it attention the proper form of illumination is fairly well understood. The speaker had visited many of the schools in the city of New York and in only one had found the lights as they should be, they being too low, unprotected and insufficient. The majority of school houses are built with too little window space. This should be one-fourth—certainly one-fifth of the area of wall space. Artificial lights should be out of the direct range of vision. Ophthalmologists might well take part in a campaign of education to that end.

"Some Observations in My Thirty-five Years in Cuba That Pertain to Ophthalmology"

An address on ophthalmology, entitled "Some Observations in My Thirty-five Years in Cuba that Pertain to Ophthalmology," was delivered by Dr. Juan Santos Fernandez, of Havana, Cuba, the guest of the academy. He concluded from his experience that eye diseases are not more serious there than in temperate countries, but on the contrary, are relatively slight. Ocular affections caused by general disturbances in the organisms are due mainly to some derangement in metabolism which originates anæmia. Heat lessens appetite and induces inactivity; a deficiency in nourishment

engenders anamia and nervous disorders. In ocular manifestations lymphatism is not prominent. Aside from this, the development of eye diseases does not differ from that which is observed in temperate zones. In Cuba syphilis is generally benign.

"Toxic Amblyopia of Diabetic Origin Occurring in a Young Woman. A Rare Symptom in the Toxemia of Diabetes."

Dr. Wendell Reber, of Philadelphia, read a paper entitled "Toxic Amblyopia of Diabetic Origin Occurring in a Young Woman, a Rare Symptom in the Toxemia of Diabetes." He said it is likely that diabetes is more prone than any other dyscrasia to eventually reveal its toxic phases by all manner of obscure ocular symptoms. But among the rarest manifestations are acquired hypermetropia and central toxic amblyopia, and it is to the latter condition that attention is directed. Quite a number of instances in the literature have occurred in smokers, and the question has arisen as to whether such owed their central amblyopia to nicotine poisoning or to the diabetic toxemia itself. That diabetics show a lessened resistance to the poisonous action of nicotine is more and more accepted by the profession every day. Such cases simulate very closely the well known forms of toxic amblyopia due to alcohol and tobacco. There is subnormal vision, a relative blind spot in the center of the visual field, and it is practically impossible to detect any ophthalmoscopic changes in the optic nerve or retina. A number of instances have been recorded in which it could not be definitely decided whether the glycosuria or the tobacco-alcohol element was the determining factor. Within the past four years the speaker had studied five cases, four of which fell in the doubtful class, as they were men and fairly free smokers. It has been said that the existence of diabetes renders the individual more susceptible to the toxic effect of tobacco than he would otherwise be. It is quite possible that there is a class of mixed cases standing midway between the toxic amblyopia plainly due to tobacco-alcohol poisoning and those due to the toxemia of diabetes. But the evidence is accumulating that the central amblyopia may be induced by diabetes without the aid of tobacco or any other extraneous poison. In support of this the author submitted the history of a young lady, age 29; subject of glycosuria, detected six months previously. She was wearing correction which gave her $5/9$ in either eye. Accommodative power

normal in each eye, likewise muscle balance. In both eyes was a low grade of marginal blepharitis. Otherwise the anterior segments were normal. The keratometer indicated in the right eye $1\frac{1}{4}$ diopter as against the rule axis of 90 or 180 degrees and in the left eye $3\frac{1}{4}$ diopter astigmatism against the rule axis 60 or 150 degrees. With the ophthalmoscope both eyes showed an absolutely normal eye ground, with the possible exception of a slight hyperemia of the nerve head and a doubtful overfulness of the lymph sheaths such as is often seen in eye strain. Under a mydriatic it was found impossible to give her better vision than $5/9$ of normal in either eye. Both eye grounds were again gone over in a painstaking manner with the same result. The mydriatic was continued for two days and another refraction done, with the same result. The question then arose as to whether the patient were not the subject of a toxic amblyopia. With careful perimetric tests of both visual fields it was found that for a 5mm. red object there was a rather indefinite relative blind spot in the center of each visual field, and with a $21\frac{1}{2}$ mm. red object a quite definite one reaching out about 7 degrees toward the normal blind spot in each eye. This accounted for her lowered central vision during the refractive estimate. The case has been closely studied for two years and at no time has there been complete disappearance of the scotoma in either eye. The findings in the urine remain about the same as two years ago.

DISCUSSION.

Dr. F. Park Lewis, of Buffalo, called attention to the idea that the peculiar susceptibility of diabetics to tobacco may be an indication that there may be a central amblyopic point to be found. In those who have heretofore used tobacco and suddenly develop an inability to use tobacco in any form, often an examination of the urine will show that the case is that of a diabetic.

Dr. Weeks, of New York, said that while it had been his custom for a number of years to have the urine examined, he had not, with the exception of one case, found a condition of glycosuria.

Dr. Young, of Burlington, Iowa, said that an important characteristic in suspecting glycosuria is the undilatibility of the pupil.

"Paresis of the Third Nerve of Both Eyes,"

Dr. Theo. B. Schneideman, of Philadelphia: He recited the case of a girl, age 17, the fifth of eight children, all healthy. Had

the usual diseases of childhood, otherwise nothing of special note until the present illness. The middle of December, 1908, she experienced some difficulty in keeping the right eye open, followed a week later by double vision. The right eye was similarly affected, but to a less degree when first seen by the essayist, in February. The girl was weak, had lost flesh and was evidently cachectic. Both eyes were in moderate divergence, the right more than the left. Each could be brought to the middle line but not beyond. Movements of supraduction and sursumduction greatly impaired. On looking downward each eye diverged markedly, due no doubt to the contraction of the superior oblique. Crossed diplopia was present in all parts of the field. The double images were not in the same horizontal plane, and the images were also tilted. As the gaze was directed downward the diplopia continued crossed. As the eyes were rotated inward the images were less widely separated. A study of the movements of each eye showed the external muscles innervated by the third nerve were all paretic, though there was no complete paralysis of any, while in the abducens the superior oblique were evidently functioning. The internal musculature was shown to be intact. The girl was lost sight of after two months of observation. The speaker was subsequently informed by the mother that the girl died on June 17th last, after an illness of two weeks, from what the physician in attendance pronounced "inflammation of the brain." This illness was ushered in by violent headache, the patient unconscious part of the time and unable to articulate. The mother thought this latter was from inability to move the tongue which seemed to be "paralyzed." She also stated there was no palsies of outer muscles and that the ocular conditions remained unchanged. The interest attaches particularly to the etiology. It appears beyond doubt that the fatal illness, evidently a cerebral affection, must have been connected with the preceding paresis of the ocular muscles. Some variety of meningitis of the base may have been the final chapter in the process which showed itself first in paresis of the ocular muscles. A central origin seems the only one admissible here. Nuclear lesion is strongly pointed to. In spite of the inadequate history of the last illness, it seems justifiable to conclude that it was a meningitis, most likely tubercular. It may likewise be concluded that the pathological cause of the preceding palsies was likewise tubercular. The absence of all indications of syphilis

and the utter failure to respond to specific treatment would justify the exclusion of the latter as a cause of the ocular affection.

DISCUSSION.

Dr. H. F. Hansell, of Philadelphia, said that the fact of the internal muscles not being affected left the seat of the lesion in doubt; it could not be direct pressure on the third nerve. No constitutional cause can be assigned for a case of this kind. The etiology must be, as the essayist has said, tubercular meningitis. It must be a tubercular infiltration not only of the meninges but of the brain, and the test for tuberculosis might be instituted in the future. The test of Rosenberger, of Philadelphia, is the one in which the most reliance can be placed.

Dr. Edward Jackson, of Denver, reported a case of progressive bulbar palsy, both third nerves involved, and there was some disturbance in swallowing. After a few weeks the process ceased and there was distinct improvement in the power of the ocular muscles. It was a severe paresis, not complete paralysis. The patient lived about two years and then died with apparently a renewal of the same process. The case was quite similar to the one reported here, except for the long interval of incomplete recovery, and in this case, in a man of 35, syphilis was unquestionably present.

Dr. C. L. Minor, of Springfield, Ohio, said he had seen recently a case of almost complete paralysis of the third nerve in both eyes, in which the family history is interesting. The parents are first cousins; the father has pulmonary tuberculosis and the mother everything else. This is the youngest of three children. The next older has paralysis of the external recti, as has the older sister. The child, eight years old, was seen first five years ago, and again recently. The syphilitic treatment was instituted without result. The ophthalmic tubercular test was used without result, and there has been no result from treatment in any of the three cases.

Dr. Savage, of Nashville, said he did not think the case was basal but rather cortical, and located in the motor area of the left side of the brain. The muscles supplied by the two third nerves would be all involved, but the center for the ciliary muscle may be so far removed as to not be involved. We know these centers are in the cortex and each connected with the muscles of the two eyes. Had the case been at the base of the brain there would have

been complete paralysis. It later extended so as to involve the speech center.

"Some Clinical Observations on Sympathetic Ophthalmia."

Dr. Dunbar Roy, of Atlanta, Ga.: The essayist said that the title and contents of the paper were suggested by the hearing of a paper by Dr. Donovan, of Butte, Mont., wherein he made a plea for the injured eye, not to enucleate until every effort had been made to save the same. Such ideas the speaker considered as erroneous teaching and certainly they do not coincide with his own clinical experience. He believes in trying to save every injured eye, but to teach that one should wait until the very last moment before enucleating, would put back fifty years the practice of ophthalmology. It is a good deal better to teach the general practitioner and the inexperienced ophthalmologist that it is best to enucleate every severe lacerated injury of the eye ball than to teach him to treat the case expectantly and watch for sympathetic inflammation.

DISCUSSION.

Dr. L. Webster, of Philadelphia, said there is no subject in the whole field of ophthalmology that instructors approach with more fear. It is their duty to be positive and dogmatic in instruction to young students of this chapter. But science has made advance, and the pendulum is swinging the other way—perhaps too far. Frequently the decision is made on account of the manner the injury is received. If the cut is a diagonal one over the ciliary process, then it is dangerous, but if the penetration is between the danger is much less. In such cases put the eye at rest with atropin and cold applications. When the wound is filled up the cautery has been used right over the wound. Both eyes are then put to rest, followed by Dr. Gifford's one grain of salicylate of soda to each pound of body weight. If this is followed up in all cases there will be less sympathetic ophthalmia than formerly.

Dr. Lauchery, of West Virginia, reported an injury to the eye of a boy, where he had thought it should be enucleated, but the advice was disregarded, and the boy has good vision today.

Dr. A. R. Baker, of Cleveland, Ohio, said he had used the giant magnet in two or three hundred cases of injury to the eye, and in no one of these cases had there been any sympathetic ophthalmia. He said he had not the fear expressed by some of

the "danger zone," believing that the sympathetic ophthalmia comes from one part of the eye as readily as from another. He also confirmed the statement in regard to Gifford's treatment, but insisted on the necessity of the large dose.

Dr. Reeve, of Toronto, subscribed to the essayist's point of view, that enucleation of a damaged eye, when it ought to be enucleated, does exercise a beneficial effect on the other eye. In getting a case early the pupil should be dilated fully and kept in that condition, followed up with calomel.

Dr. Jno. E. Weeks, of New York, speaking of the value of Fuchs' researches, said he had shown that certain specific changes take place in the eye as a result of the injury, probably an infection, that produces sympathetic ophthalmia, and the injured eye is in all probability the source from which the infectious material passes to the other eye. He is inclined to think Fuchs is right in saying it is carried by the blood from the exciting to the sympathizing eye. This explains why, after enucleation, we get an attack of sympathy in the other eye; that is, that the virus is already on its way when the eye is removed, and simply has not yet reached the sympathizing eye. This is an argument for enucleation, as the exciting eye is a feeder, the source from which the poison is emanating, and unless the vision is better in the exciting eye than it will probably be in the sympathizing one, it should be removed.

Dr. Jno. McReynolds, of Dallas, Texas, said he had made an exhaustive study of this subject, going personally over every case reported in the Royal College of London, and consulting with many ophthalmologists in this country, and had been amazed at the number of cases that had followed the most carefully performed operations. Lister of London had told the speaker that they followed in four of his best cataract extractions. Knapp reports four cases out of 3,000 cataract extractions, and Gifford reports three. Out of 12 cases in the Royal College of London, six followed cataract extraction, two followed glaucoma, two followed injury, and one was due to retained foreign body. Sympathetic ophthalmia is not to be treated as a certainty to be foretold.

Dr. Leartus Connor, of Detroit, said there is nothing in the whole realm of ophthalmology of such uncertainty as this. He had never had irritation or infection following the use of the giant magnet, and Dr. Donovan's report referred to by the essayist, probably had to do with injuries received in that mining

country where human beings had never deposited their filth. All treatment, excepting the surgical, is antiseptic.

Dr. Young, of Burlington, said he thought the older men in the profession were the staunchest advocates of enucleation, for the reason they had seen more cases of sympathetic infection. The sight of one case is enough to make a man an advocate of enucleation. Unfortunately, Fuchs' observation do not help us much, because we have to make the decision from a clinical standpoint.

Dr. Jackson, of Denver, thought that an eye with a foreign body in it that could not be extracted, should be enucleated at once; but if the steel can be removed, and the patient can remain in reach of an ophthalmic surgeon, he should be dismissed with the strictest instructions that at the first evidence of inflammation he should have the exciting eye removed.

Dr. Emerson, of Orange, reported the case of a man who had received an injury to the eye so early in childhood that he did not know what it was, and after a period of quiet lasting forty-five or fifty years, the trouble developed.

Dr. Francis Valk, of New York, said if there was little possibility of useful vision, and the man is a working man, he enucleates at once.

Dr. Stuber, of Lima, said that an injury from a tack or pin was more dangerous than that from a knife or scissors blade, where the escape of fluid will wash out the infection. Early treatment has much to do with the prognosis, and family physicians should know there is such a thing as a danger zone and that slight injuries are just as dangerous as greater ones.

Dr. Hansell, of Philadelphia, said that not all diseases that come to the eye after injury to its mate are sympathetic. When the eye is not inflamed or tender he does not believe sympathetic inflammation exists. It is necessary to determine whether it is really infected sympathetically, or suffering from some independent cause.

Dr. Fridenberg said that the difficulties of decision were enormously increased when it is not an injured eye but an inflamed eye, and where it may take the form of opacity, or where the old synechias are merely setting up an inflammation.

Dr. Roy, closing the discussion, said that Fuchs' findings are of no value in determining what should be done. The only point established is that the changes are produced by some micro-organism, and if these could be established there might be some value

derived. When it comes to a badly damaged eye, the oculist should do what is going to be for the best interest of the patient, regardless of sympathy.

"A Further Study of the Nature and Treatment of Pterygium,"

By Dr. Jno. McReynolds, of Dallas, Texas, who described in detail the preparation of the eye, and said he had never seen infection follow the operation, even in cases where a distinct conjunctival discharge was present at the time of operation. Anæsthesia is produced by 5 per cent cocaine solution, and where the pterygium is very thick a few crystals of cocaine hydrochlorate are applied directly to the head and neck of the pterygium. The use of adrenalin chloride is reserved for the more vascular forms of pterygia. The pterygium is grasped with strong but narrow fixation forceps, lifting the growth freely from the underlying sclera. The forceps are devised so that the narrow extremity securely holds the growth, while the flattened serrated segment adjacent to the point can be used as a needle holder, thus reducing the number of instruments. No lock should be used. He has devised a knife, which is essentially a short bladed double edged Graefe knife placed at an angle of 135 degrees with the axis of the handle, which arrangement enables the operator by standing at the head of the patient, to introduce the knife with equal facility in either side of either eye, and also to cut in any desired direction without changing the relation of patient and surgeon. The knife is very narrow so that it can transfix the neck of the growth without first cutting laterally to any marked extent. When the point has well emerged from beneath the neck of the pterygium, the knife can be made to shave off every part of the growth from its corneal attachment. The speaker said he could not emphasize too strongly the necessity for the complete removal of the growth from the cornea, in order to secure the nearest approach to a perfect result, with the minimum tendency toward a recurrence. Hence it is essential to the highest efficiency that the pterygium knife be as sharp as possible both in its point and in its cutting edge. The separation of the body of the growth from the underlying sclera he generally accomplishes with the point of the *closed* Stevens Strabismus scissors, which are useful also in undermining the conjunctiva above the pterygium and in making the subsequent oblique incision along the lower border of the pterygium, and in undermining the conjunctiva below this incision and in

removing when necessary any portion of the growth or the vascular subconjunctival tissue beneath it. If the growth is so bulky that it is unnecessary to preserve every portion in transplanting, the superfluous tissue is cut away, but this cutting must be confined to the horny portion of the head, the lower margin of the body and the vascular subconjunctival tissue, always preserving intact the superior margins of the pterygium in order to utilize to the fullest extent the elasticity of the unbroken conjunctiva above the growth in covering smoothly the denuded area of the sclera when downward traction is made upon the head of the pterygium. In order that the pterygium may easily and freely glide downward when traction is exerted upon it, care must be taken to undermine thoroughly the conjunctiva above the growth, and especially must all conjunctival fibres in the immediate vicinity of the neck be freed from their attachment at the limbus. Of all the forms of suture material, black silk thread has been found the most satisfactory. Sufficient adhesions will frequently occur in one or two days—a matter of some moment to patients living at a distance. It is essential to so direct the threads and regulate their tension that the normal conjunctiva above the growth shall be made to curve accurately around the denuded limbus without encroaching upon the cornea or without leaving any portion of the sclera uncovered. If the calculations have not been perfectly accurate, the needles may be inserted again, or the overlapping conjunctiva trimmed away along the line of the limbus. A light bandage should be worn for a few days and the patient instructed to avoid those conditions that have a tendency to favor the development primarily of the affection. All errors of refraction, especially the astigmatism usually present, should be corrected. In operating for extensive pterygia in those advanced in years, the author usually instills a few drops of pilocarpine solution after the operation, to avoid any possible development of glaucoma.

DISCUSSION.

Dr. Savage said that no operation had been given ophthalmologists for two decades that is equal to the McReynolds operation for pterygium. The feature of the operation is the deposition of the head after it is removed, which is unequalled.

Dr. Fernandez, of Cuba, said that a large number in that country came with histories of small traumatism, usually in laborers. Occasionally repeated operation is necessary.

Dr. Young said he had invented a knife which is kidney-shaped, more broad than that of Dr. McReynolds, which will follow the shape of the cornea. He does not attempt to take it all at once, but introduces the kidney-shaped knife with the convexity upward. The most complete dissection he has ever made is the only one he has had recur in ten years. After the pterygium is removed, the knife can sweep back and clean off the sclera, as both edges are sharp.

Dr. Jackson, of Denver, said the first essential is the thorough cleaning off of the cornea and for some distance back of the sclera, and he generally places in the region of the limbus opposite where situated.

"Massage as an Occupation for the Blind,"

L. Webster Fox, M. D., of Philadelphia, read a paper on "Massage as an Occupation for the Blind," in which he emphasized the importance of the thorough training of the blind for this important work, for which they are peculiarly fitted. In order to succeed in this work the blind man or woman should be healthy, well informed, possessed of a refined manner, of good moral habits; the breath should be irreproachable and the hands well formed and smooth, being neither too fat nor too thin, and above all things, not moist. If given the support of the medical profession, blind masseurs will be received with pleasure by patients, and it is hoped this will become in this country, as it is in Japan, a profitable means of gaining a livelihood for these unfortunate people.

"Study of Heterophoria and Heterotropia in Duction and Version."

Edward Lauder, M. D., of Cleveland, Ohio, read a paper on "Study of Heterophoria and Heterotropia in Duction and Version." He pointed out that the dynamic condition of the recti muscles estimated by the results of version, determined by a tropometer, does not always strictly corroborate the dynamic condition of the recti muscles estimated by the results of duction determined by prisms. While duction has its greatest value in cases of esophoria and exophoria, the speaker thinks there is no appliance that can compare with a tropometer as an aid in arriving at a satisfactory decision as to the *modus operandi* in the various conditions of heterophoria and heterotropia or squint.

In a series of case reports he illustrated the points as to the value of the tropometer and also referred to the apparent lack of corroboration between the results of version and duction in estimating the dynamic condition of the external and internal recti muscles. The speaker concluded with the statement that of all the appliances with which he is conversant, used in studying the muscular balance of the eye, none has rendered more service and satisfaction than the tropometer, and he considers its use equal to the use of atropine in refraction.

"Operative Treatment of Strabismus."

Howard F. Hansell, M. D., of Philadelphia, followed with a paper, the title of which was "Operative Treatment of Strabismus." Functional squint only was considered, and it was stated that the propriety of operating and the choice of operation depended on a knowledge of the cause, the complications and the degree. Internal squint is in its incipency unquestionably a functional affection and to be cured by continued therapeutic paralysis of accommodation and the restoration of the normal balance between accommodation and convergence by the use of convex lenses. But after the period of functional imbalance has passed, subject to individual variations and organic changes in the brain centers the ocular nerves or ocular muscles have set in, upon the nature of these changes depends the character of the surgical measure to be resorted to. Experience leads to the belief that the careful division of the whole tendon at its insertion without interference with the secondary attachments is efficacious when the deviation is 25 degrees or less. For higher than 25 degrees, double externus rectus advancement has been the operation most successful, and the procedure proposed by Wootten most satisfactory. This is to be recommended provided the squint is concomitant, that it exceeds 25 degrees, that the technique is closely followed and the eyes are bandaged four days. In cases of hyperopic strabismus in which amblyopia of one eye is present, the Wootten operation is not recommended. The operation to be preferred is, for high grades, advancement of both externi and tenotomy of the internus of the squinting eye; for the lower grades, advancement of externus and tenotomy of internus, both confined to the squinting eye. In considering the etiology and therefore the treatment of myopic external squint, one must go deeper and study the real

sources of the loss of co-ordination. With the correction of the optical defect, giving both eyes approximately equal vision, convergence may be restored and maintained by double advancement, provided the images are thus artificially brought near enough to each other to stimulate to action the natural forces of fusion. Convergence and divergence are extremely complicated functions, and it must not be forgotten that every movement of the eyeballs concerns the stimulation and inhibition of antagonistic groups of muscles, controlled by a complicated nervous apparatus, the intricacies of which no physiologist has been able to fathom.

The papers of Dr. Lauder and Dr. Hansell were discussed jointly. Dr. Francis Valk, of New York, stated that no case of squint should be operated on until one has taken the field of fixation. The tropometer will tell whether there is a weak externus or a strong internus. It is an anatomical condition, not inhibitional. It is one of the most useful instruments in an office, but it must be read rightly. In considering duction and version, it must be remembered that these functions are physiologically different; that duction is the automatic function of the eye, controlled by the lower brain centers, and that version is almost entirely voluntary and is controlled by the higher brain centers, and one must not be led astray because there are sometimes found apparent contradictions in these important findings of duction and version.

Dr. Savage called attention to the fact that there is a center of convergence and a center of control of the ciliary muscles and an unquestionable relationship between the two centers. There can be no squint without inharmonious muscles, differing in tonicity. It should be determined in each patient if the vision is equally good in both eyes: if so, one should go slowly. If they are made absolutely straight double vision is the result.

Dr. Lucien Howe, of Buffalo, said that the mistake is made in regarding squint as a disease when it is a symptom. He recommended that all study carefully the nucleus of the third nerve, and watch cases in the alms houses, securing specimens after death, and thus endeavor to reach the base of the trouble.

Dr. Wendell Reber, of Philadelphia, endorsed the statements of Dr. Howe. He thought it wise to divide the cases of convergent and divergent strabismus into congenital and developmental. Regarding the relative advantages of advancement and

tenotomy, anything that increases the grasp of the muscular cone on the eyeball is to be desired, and the speaker is doing more tenotomies every year.

Dr. Hansell, closing the discussion, said he felt the tropometer is at fault in that while it tells you the eye is turned in or out, up or down, but does not specify which muscles are at fault.

"The Evolution of the Eye Movements and the Genesis of Nystagmus,"

Dr. Alexander Duane, of New York, read a paper on "The Evolution of the Eye Movements and the Genesis of Nystagmus," with schematic illustrations, considering first the reflex arc formed by the sensorimotor fibres connected with the eye; second, how fixation and the lateral movements of the eyes are developed and regulated by reflex action; third, how the movement of convergence and divergence are developed by reflex action; fourth, fixation and the associated movements are secondarily produced and regulated by conscious perception and by the unconscious effort to overcome diplopia; fifth, primary perversions of fixation and of the associated movements produced by conditions which prevent the development of the normal reflex actions, and sixth, secondary perversions of fixation and the associated movements.

"The Recognition and Measurement of Low Degrees of Nystagmus."

Dr. Edward Jackson read a paper on "The Recognition and Measurement of Low Degrees of Nystagmus." The method of observing nystagmus here described consists in noting the character of the movements executed by definite structures in the ocular fundus as seen in the erect ophthalmoscopic image. Withdrawing the observer's eye until the optic disc appears to occupy the whole of the pupil, one observes the apparent extent of the movements, whether a given vessel appears to pass entirely across the pupil with each excursion of the eyeball, or only one-half or one-fourth of that distance. Thus by brief calculations the real extent of the lateral or vertical movement is to be deduced. It is useful in attempting to judge the progress of any case under treatment and in cases reported to take their place in the literature of the subject.

The papers of Drs. Duane and Jackson were discussed jointly, Dr. Schneideman, of Philadelphia, saying that while heretofore

there has been a qualitative estimate of nystagmus, vertical or rotary, no quantitative estimate has been made, and Dr. Jackson's scheme is new, first class and answers the purpose.

Dr. Percy Fridenberg, of New York, said that Dr. Duane's painstaking neurological study of the evolution of eye movements is especially valuable and increasingly important as the otologists are recognizing and studying the occurrence of nystagmus in otitic disease.

Dr. Reber said an easy though gross means of estimating a nystagmus was by the use of an ordinary ophthalmometer, with a suitable scale such as used in the tropometer.

Dr. Savage was of the opinion that lateral nystagmus is the result of the lateral recti muscles being too loose, and in vertical nystagmus the superior and inferior recti are too long and flabby.

Dr. Duane, closing, said that his theory applies to only one form of nystagmus, and not to the otitic and late acquired forms due to nervous troubles, like multiple sclerosis.

"The Teaching of Ophthalmoscopy to Undergraduates and Graduates in Medicine,"

W. A. Fisher, M. D., of Chicago, in a paper on "The Teaching of Ophthalmoscopy to Undergraduates and Graduates in Medicine," said that ophthalmoscopy would be of great value to the undergraduate not only to enable him to take advantage of the ophthalmic clinic, but of many cases in his general medical, obstetrical, neurological or venereal clinics. Referring to the difficulties arising in the ordinary methods of teaching ophthalmoscopy, he advocated the use of a schematic eye. While not attempting to make oculists of undergraduates, it is imperative that the family physician be able to diagnose gross pathologic lesions of the interior of the eye as readily as he can detect them in other parts of the body.

DISCUSSION.

Dr. A. R. Baker, of Cleveland, said that in the Cleveland College the students are given about seventy-two hours in the dispensary, witnessing and assisting operations, about thirty-two hours in didactic and clinical lectures and twelve hours in hospital service, making 116 hours altogether. He said the time has come when this important part of medical work should be taken out of the hands of laymen and done by the medical profession. It has

been his observation that whenever there is a field of medicine that is uncultivated by the profession, there quacks abound.

Dr. Fox said he did not advocate the use of the schematic eye, as the pupils found the painted picture was different from the actual eye, and were not so interested.

Dr. Davis, of New York, said one practical point is that these men are taught to relax their accommodation and how to reflect the light into the eye, a valuable experience to gain on the schematic eye. It is very hard to hold material for five men to work on.

Dr. Connor, of Detroit, said that unless physicians know how to do simple refraction, laymen will do it, because there are not enough specialists to attend to it. But when the profession accomplish this, optometry will be dead.

Dr. Reeve, of Toronto, said that if a young man graduates without having used any instrument, for instance the microscope, it is quite likely he will never use it. The time for graduation in the college in Toronto is five years, and yet there has never been found time to teach ophthalmoscopy as it should be taught. The teacher in physiology finds it practical to introduce what he terms applied physiology into the class, and makes the student listen to the living heart beat, and in like manner, look through the ophthalmoscope and see the living eye.

Dr. Jackson approved the use of the instrument in applied physiology and in anatomy as well, and it will be of great value to the student not only in ophthalmology but in medicine and pathology, giving him exact ideas in the latter that he can obtain in no other way. An important point in the schematic eye shown by Dr. Fisher is the iris diaphragm, which can be changed to produce a pupil of from 30 m. m. down to 2 m. m.

Dr. Fisher, closing the discussion, said the idea was not so much to get the student to study a schematic eye, but to teach him to see an eye when he tries to.

Notes and News

Dr. Geo. E. de Schweinitz, of Philadelphia, has returned from Europe.

Dr. and Mrs. John E. Weeks, of New York, recently returned from a summer in Europe.

Dr. Ernest Morowec, of Tell City, Ind., is attending European clinics.

Dr. and Mrs. Geo. Fisk, who were in Europe, have returned to Chicago.

Dr. Motais, of Angers, France, has been decorated with the Legion of Honor.

Duke Karl Theodor, of Munich, one of the most prominent German oculist, recently celebrated his seventieth birthday.

Dr. Vard H. Hulen announces his removal from San Francisco to Scanlan building, Houston, Tex.

Dr. R. J. Atwood, of Paxton, Ill., has gone abroad for a year of post graduate work.

Dr. George F. Keiper, of Lafayette, Ind., has been elected a trustee of DePauw University, Greencastle, Ind.

Dr. W. M. de Vries, privatdozent in Amsterdam, has been made professor of pathological anatomy and medical jurisprudence.

Prof. Dr. Wm. Manz, emeritus director of the University Eye Clinic, in Freiburg, celebrated his fiftieth year as Dozent on September 14.

There is an assistantship vacant in the British Ophthalmic Hospital in Jerusalem. The salary is \$1,500 yearly.

By bequest from Emma A. Tillotson, of New York, the New York Institute for the Blind shares with other institutions a sum of \$175,000.

Dr. Myles Standish, of Boston, has received the appointment of Williams professor of ophthalmology at Harvard.

Dr. A. Bietti, professor on the Medical Faculty of Cagliari, has been made professor of ophthalmology at Siena, Italy.

Mr. Nettleship, of London, has been awarded the Nettleship Medal by the special committee of the Ophthalmological Society of the United Kingdom.

Mr. S. Riseley has received the appointment of honorary ophthalmic surgeon to the Sheffield Institution for the Blind, a post formerly held by the late Mr. Simeon Snell.

Dr. E. W. Jones, of Lynn, Mass., is making an extended tour of Europe and its hospitals.

Dr. Thomas Phillips, of Milwaukee, Wis., has been made dean and professor of ophthalmology and otology at the Wisconsin College of Physicians and Surgeons.

Dr. William Campbell Posey, of Philadelphia, officiated as chairman of the eye, ear, nose and throat section of the Medical Society of the State of Pennsylvania which held its meeting in Philadelphia, September 28th.

At the annual meeting of the British Ophthalmological Society, held in London in July last, Dr. G. A. Berry was made president; Mr. Herbert Fisher and Dr. E. Farquhar Buzzard, secretaries; and Mr. J. B. Lawford, treasurer.

Dr. William P. Wood of the Episcopal Eye, Ear and Throat Hospital of Washington, D. C., recently suffered severe burns of his hands in extinguishing a fire in the hospital. His great presence of mind not only saved a great fire loss but prevented a dangerous panic.

The British Navy medical examination will in the future include the testing of the vision, and periodical tests will be made to increase efficiency and to make possible the best disposition of the members of the crews.

The thousand kronen prize of the Hungarian Minister of the Interior, offered for the best work on the etiology of trachoma, has not been awarded. It is said that no papers have been accepted as they have shown no appreciable progress in the study of this disease.

Dr. Geo. C. Harlan, of Philadelphia, died September 22nd, following a fracture of the spine resulting from a fall from a horse. Dr. Harlan was 74 years of age and for many years was prominent as an ophthalmologist. He was consulting surgeon to Wills Eye Hospital; ophthalmologist to the Pennsylvania Hospital, Pennsylvania Institute for the Blind and the Pennsylvania Institute for the Deaf and Dumb, emeritus professor of ophthalmology at the Philadelphia Policlinic.

Sir Stephen Mackenzie died Sept. 3rd, at Dorking, Surrey, England, aged 65 years. He was closely associated with ophthalmology, as well as with dermatology and general medicine. He wrote extensively on hemianopia, retinal hemorrhages in pernicious anemia and in various vascular diseases. At one time he was physician to the Royal London Ophthalmic Hospital (Moorfields).

The following officers of the Academy of Ophthalmology and Oto-Laryngology have been elected for the ensuing year: President, Wendell Reber; first vice-president, Lorenzo Lockhart; second vice-president, L. W. Dean; third vice-president, Chas. L. Minor; secretary, Geo. F. Suker; treasurer, Secord Large.

Dr. Xenophon Scott, of Cleveland, a well known ophthalmologist, died in that city September 30th, from cerebral hemorrhage at the age of 66. Dr. Scott held many important offices during his unusually active career, among them being the presidency of the Mississippi Valley Medical Association. He was ophthalmic and aural surgeon to the German Hospital, professor of eye, ear, nose and throat at the Western Reserve University, and founder

and surgeon-in-chief of the Cleveland Eye, Ear and Throat Institute.

Professor Theodore Leber, director of the University Eye Clinic in Heidelberg, will be seventy years of age on February 28th, 1910. His friends propose to show their appreciation of his services to ophthalmology by presenting a bust of Prof. Leber, to be executed by a celebrated sculptor, to the University Eye Clinic in Heidelberg, where he has worked for twenty years. It is requested that those who wish to join in thus honoring Prof. Leber send their contributions to the Rheinische Creditbank Filiale in Heidelberg at once so that arrangements may be concluded with the sculptor. The names of those subscribing to the fund will be enrolled in an album which will be presented at the jubilee.

Wireless Disease.—According to M. P. Bellile, a French naval surgeon on board the *Descartes*, which has been engaged in the campaign in Morocco, the members of the ship's company who were employed in wireless telegraph duty developed various affections in consequence of the action of the Hertzian waves. Most commonly the telegraphists complained of their eyes, a slight conjunctivitis similar to that occurring among those who work with arc lamps being found. Although this of itself was not generally serious, in one case where the attack recurred again and again, keratitis was produced which resulted in a leukoma of the right cornea and consequent impairment of vision. In order to protect the eyes from the ultra-violet rays of electric emanation, it was recommended that yellow or orange glasses should be worn. Not only were the eyes of the operators affected, but two cases of eczema—one of the wrist and one of the eyelid, both very difficult to cure—were seen. One of the officials who had been employed for several years in wireless telegraphy suffered from painful palpitation of the heart, which came on after working for any length of time at the instruments for sending messages. This man was quite free from any organic lesion of the heart. M. Bellile is disposed to think that a good many of the cases of nervousness and neurasthenia, which seem now to be getting rather common among naval men, may be due to the work which is being done in wireless telegraphy.—(Electrical World.)

A PECULIAR KIND OF ELECTRICITY.

There is a kind of electricity that puzzles scientists, which may be termed natural electricity; but it has nothing to do with either lightning or the well known cat's fur variety. One set of observations was made on the human eye with its optic nerve and the following results obtained:

It was found that when one end of a wire was placed on the front part of the eye and the other end on the optic nerve a current of electricity passed from one to the other; also that the size of this current varied with the amount of light that entered the eye and fell on the retina. Notice that this is a current of electricity, and not the static kind, as is that of the lightning and the rubbed fur. This same result was obtained when one end was placed on a freshly cut end of any nerve and the other end on the outside of the nerve.

Facts like these have caused many scientists to regard the body as a complicated producer of electricity, the nerves, like the insulated wires to and from our galvanic batteries, serving to conduct the electricity to and from the great central nervous organ, the brain.

Several years ago, Dr. Siemens, in a lecture given before the Royal Society tried to imitate the eye in this experiment. Crystalline selenium is a better conductor of electricity under the influence of light than it is in the dark. Its conductivity likewise varies for the different kinds of light,—red, blue, green, etc. In Siemens' artificial eye, therefore, the retina was represented by a thin plate of selenium, and the source of electricity was an ordinary battery.

On opening the eyelids of this artificial eye, and admitting light from a white illuminated screen, a strong deflection of the galvanometer needle was observed. A black screen gave hardly any deflection, a blue one a greater, and a red a much greater, but still short of that produced by the reflected white light. The eye was thus sensitive to light and color, and an imaginative scientist would not scruple to look upon the galvanometer as a kind of brain, the wires and battery as the nerves and body of an artificial organism entirely under his control.

While it is seen that all living animals can come under this head as actual producers of electricity, there are two animals that can produce enough electricity at will to do considerable damage—the torpedo and the electric eel.

One other kind of electricity that is a riddle so far, is that which is produced directly from heat and called thermal electricity. If any two dissimilar metals are joined at both ends, and one junction heated, a current will pass. If the same junction is cooled, a current will pass in the opposite direction. One of the greatest problems of modern physics is to get a practical way to accomplish this in great quantities so it may be applied to engineering.—(Saturday Evening Post.)

A DIPLOMA IN OPHTHALMOLOGY.

The University of Oxford, England, has begun to issue special diplomas in ophthalmology to physicians that mean something. The conditions are as follows:

1. The examination shall be conducted partly in writing, partly *viva voce*, and shall be partly practical.

The subjects of the examination shall be:

(1) The dioptrics of the normal and abnormal eye.

(2) Abnormalities and diseases of the eye and its appendages, their ætiology, pathology, diagnosis and treatment.

(3) The relation of ophthalmology to general medicine.

(4) Clinical cases illustrating (1), (2) and (3).

(5) Ophthalmic surgery.

2. The fee payable by a candidate on admission to the examination, on the first occasion on which he offers himself, shall be £15, unless he is a graduate of the university, in which case it shall be £10. Any candidate who has paid such fee, and who offers himself for examination again on a subsequent occasion, shall pay a fee of £5 only.

3. The examination shall be held annually and shall commence on the third Tuesday in the month of July. The assistant registrar shall give at least one month's notice of the time and place.

4. The names of candidates shall be received by the assistant registrar. They must be sent in on forms provided by him for the purpose and to be obtained at his office, so as to reach him on or before the thirtieth of June preceding the examination. The suitable fee must be paid at the time of entering the name.

5. Candidates must have their names on the Medical Register of the United Kingdom, or, if they are graduates in medicine

of universities outside the United Kingdom, must obtain the permission of the Board of the Faculty of Medicine.

6. Candidates shall be required at the time of entering their names, to produce the following certificates: (i) A certificate showing that the candidate has satisfactorily carried out in the University of Oxford the practical study of the anatomy of the eye and its appendages, including the development and minute structure of these parts. (ii) A certificate showing that the candidate has satisfactorily carried out, in the University of Oxford, the practical study of physiological optics and of the physiology of vision. (iii) Certificates showing that the candidate has duly attended a course of clinical ophthalmology for twelve calendar months in connection with hospitals or institutions recognized for the purpose by the Board of the Faculty of Medicine. (iv) A certificate showing that the candidate has satisfactorily carried out in the University of Oxford the study of the subjects of examination set forth in clause 1.

7. The Assistant Registrar may require candidates to give such further information as he may judge necessary to satisfy him that the provisions regarding admission to the examination have been properly observed.

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

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THE POLES OF THE EYE AND THE SIGNIFICANCE OF THEIR TRUE LOCATION; AND THE BINOCULAR SPACIAL POLE WITH ITS FULLNESS OF MEANING.*

BY G. C. SAVAGE, M. D.,
NASHVILLE, TENNESSEE.

(Illustrated.)

I venture to speak once more on the general subject of binocular rest and motion, and for the reason that I am anxious for you to see the truth, if I have it; but, if I have not the truth, that you may show me my errors. I must be pardoned for using just here a very strong expression, my purpose being to more certainly command your closest attention: If the fundamental principles of binocular rest and motion, which I have advocated for many years, are correct, then all authors writing upon the same subject, from Helmholtz to Howe, are in error. Not a chapter on this subject in any book except my own has been based on the fundamental principles which I have enunciated. In stating this I am simply acknowledging that the book-writers were not yet my disciples when their latest editions appeared. Nor would I have them follow me only as I myself walk in the light of truth.

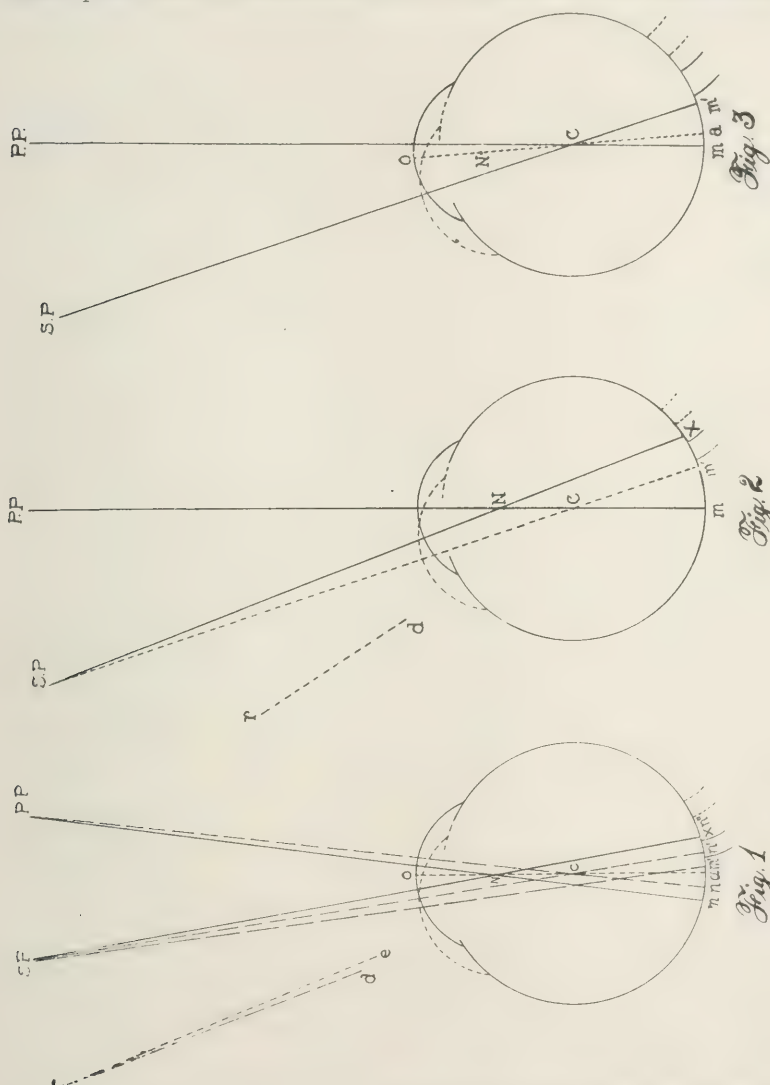
In my paper read before this Academy two years ago I pointed out that Helmholtz's teachings on ocular motion had been founded on three fundamental errors. These were: (1) In locating the poles of the eye he began the optic axis at the center of the corneal

*Read at the New York meeting of the Academy of Ophthalmology and Oto-Laryngology, October 5, 1909.

curve, making this point the anterior pole, and carried this line back through the center of rotation to a point on the retina usually between the macula and disc, naming this point the posterior pole. (2) He made the visual axis intersect the so-called optic axis at the nodal point and this caused it to cut the cornea a few degrees to the nasal side of the corneal center—his anterior pole. (3) He concluded that the lines connecting objects and their images are axial rays of light, each crossing all the others at the nodal point. To these fundamental errors is chargeable the fact that no man, not even his brightest pupils, has been able to understand Helmholtz's chapter on "Rotations of the Eyes." Even he himself must have recognized the murkiness of this chapter, for, when one of his brightest pupils said to him while on a pleasure walk, "Professor, I have no trouble with any part of your 'Physiologic Optics' except the chapter on rotations of the eyes," he said: "I am not astonished to hear you speak so. Leave that chapter alone, for, though it cost me more time and thought than any other part, I must rewrite it; then I hope to make it clear." He lived many years after this conversation, but never rewrote that chapter. If he had been fortunate enough to have discovered his three fundamental errors, he would have rewritten that chapter in such a clear, strong and masterful manner as to leave nothing for subsequent writers to do except to endorse and to quote.

Against these fundamental errors of Helmholtz I want to place three facts, or truths, which I discovered many years ago, which facts have been the foundation of all that I have taught in my two books, *Ophthalmic Myology* and *Ophthalmic Neuro-Myology*, and in other writings. They are these: (1) The central point of the macula is always, in all eyes, the posterior pole; (2) The visual axis, passing from the macula through the center of rotation, is the true and only optic axis, and the point of the cornea cut by this line, as it goes out into space, is the anterior pole, whether this point be the center of the corneal curve or not; (3) Lines of direction, that is, lines that connect retinal images with their respective spacial objects, are radii of retinal curvature prolonged, hence, each must cross all the others at the center of the retinal curve, which is the center of rotation. Incontrovertible proof—proof that has not been controverted—of the correctness of these three propositions, was presented in my paper, "A Further Study

of the So-called Horopter, Making Ocular Rotation Easy of Understanding," already referred to. I thought then that no further argument would ever be necessary, nor did I think that any additional proof, both stronger and clearer, would ever be forthcoming.



I am now ready, however, to cap the climax of proof with evidence which is not only incontrovertible but wholly convincing.

I will ask you to study, first of all, Fig. 1. This represents the non-ideal eye of Helmholtz, in which o , the center of the cornea, is the anterior pole, and a , between the macula and disc, is the posterior pole, and $o-c-a$ is the optic axis. $P.P.$ is the primary point of view, whose retinal image is at m . The so-called visual axis of Helmholtz, connecting object and image, crosses the optic axis at the nodal point N . $S.P.$ is the secondary point of view, whose retinal image, according to Helmholtz, is at x . The indirect visual line, $S.P.-x$, connecting this secondary point of view and its image, crosses the visual axis at the nodal point N . Motionless objects in space and their retinal images bear an unalterable relationship to each other. For this relationship to be maintained, when the point of view is changed, the visual axis must assume the position of the indirect visual line that connected the secondary point of view with its image, before the rotation began. Since in Fig. 1 the visual axis $P.P.-m$ lies to the outer side of the center of rotation, c , while the indirect visual line $S.P.-x$ lies to inner side of the center of rotation— c —the former can never be made to assume the position of the latter. To show the confusion that would occur when such an eye is rotated, the figure must be complicated by drawing a line from $P.P.$ through c to n . This line $P.P.-c-n$, a radius of retinal curvature prolonged, will have its relationship with $P.P.-m$ unaltered in any rotation of the eye. When the eye rotates from $P.P.$ to the point $S.P.$, the position of the prolonged radius is $S.P.-n'$ and that of the visual axis $S.P.-m'$. The visual axis in space has reached the secondary point $S.P.$, but has not reached the retinal image at x , for even $S.P.-n'$ has stopped short of x , and m' is just as far behind n' as m , in the primary position, was distant from n . The macula m may be rotated under the secondary image at x , but when this is done the prolonged radius $P.P.-n$ will assume the position $n''-c-e-r$, and the visual axis will take the direction $x-d-r$. Since, in monocular vision, any point whose image is on the macula appears to lie on the visual axis, the secondary point of view would appear to be at r in space, removed nearly twice as far from the primary point as it was before the rotation began. The images have remained the same distance apart, but the motionless objects in space have apparently become more widely separated. This is out of harmony with human experience.

In the next place I will ask you to study the ideal eye of Helmholtz, as shown in Fig. 2. In this figure the visual axis $P.P.-m$ cuts the center of the corneal curve, Helmholtz's anterior pole, and therefore coincides with his optic axis, the macula becoming the posterior pole. The secondary point of view is $S.P.$ and its image is supposed to be at x , the two being connected by the indirect visual line $S.P.-N-x$. As in Fig. 1, $P.P.$ and $S.P.$ are motionless points in space; therefore they and their images must bear a fixed relationship the one with the others, hence, when the eye rotates from the one point of view to the other, the visual axis $P.P.-m$ should assume the position of $S.P.-x$, but since the one passes through the center of rotation and the other does not, the former can never become the latter. To show what would take place we must extend a line from $S.P.$ through the center of rotation c to the retina at m' . When the eye is rotated from $P.P.$ to $S.P.$ the visual axis $P.P.-m$ assumes the position $S.P.-m'$. The spacial end of the visual axis has reached the secondary point, but the retinal end has fallen short of its image. The macula m can be rotated under the image at x , but when this has been done the motionless point $S.P.$ will appear in the direction $x-c-d-r$. This, too, is contrary to all experience.

Many years ago I announced as a fact that the central point of the macula is the posterior pole, and that the anterior pole may or may not be the center of the cornea. I also announced at the same time that all lines of direction are radii of retinal curvature prolonged, and not axial rays of light. Fig. 3, representing a non-ideal eye, that is, an eye whose true anterior pole is to the nasal side of the center of the corneal curve, proves conclusively that I discovered the truth. In this figure $P.P.$ is the primary point of view and $S.P.$ is the secondary point of view. The image of the former is on the macula at m , while the image of the latter is on the retina at m' . The visual axis is $P.P.-m$, and the secondary visual line is $S.P.-m'$. Since these lines cross each other at the center of rotation and are radii of retinal curvature prolonged, the one can be made to assume the position of the other when the point of view is changed, and that, too, without disturbance, either apparent or real, of the fixed relationship of the two motionless points in space and their respective retinal images. This is in accord with human experience.

Returning to the ideal eye, shown in Fig. 2, the image of *S.P.* is not at *x*, but at *m'*, and the real secondary visual line is *S.P.-c-m'*, whose position the visual axis takes when the eye rotates from the primary to the secondary point of view. Thus Fig. 2 may be made to teach the truth, after erasing the continuous line *S.P.N-x* and the dotted line, *d-r*, to the left.

In Fig. 3 I have shown Helmholtz's so-called optic axis *o-a*, and on it his nodal point, "useless each even with the other." The sooner they are forgotten the better, and the *angle gamma* should be included in the forgetting. The true posterior pole is the central point of the macula, the true optic axis is the visual axis, and the true anterior pole is that point of the cornea cut by the visual axis, whether it be the center of the cornea or not. An undeniable evidence that the central point of the macula is the posterior pole is the fact that all retinal meridians cross at this point—at the crossing of the meridians is the pole. There is no longitude there; and, likewise, there is no latitude for adverse argument.

The discovery of the true location of the posterior and anterior poles of the eye was a fortunate one, and I must be pardoned for feeling some joy in the achievement. On this discovery is based the law of monocular motion and of binocular rest and motion. In monocular motion every rotation plane is an extended meridional plane of the eye. Such a rotation is effected by one muscle only, if that muscle is bisected from origin to insertion by the rotation plane. When two, or, at most, three, muscles must effect a given rotation, their resultant action is that of an imaginary muscle which would have been bisected by the rotation plane. The law of binocular rest and motion cannot be better stated than in the following language: "The ocular muscles must so relate the two eyes that the two visual axes and the two horizontal retinal meridians shall always lie in the plane of the primary isogonal circle, and that the two visual axes shall intersect at some point on this circle, in the interest of both binocular single vision and correct orientation." The isogonal circle could not exist if the posterior pole were not the macula and if all lines of direction were not radii of retinal curvature prolonged.

I have recently discovered the binocular spacial pole, the value of which can be easily comprehended as I proceed. Figs. 4 and 5 show truths which we all have known, but have not fully appre-

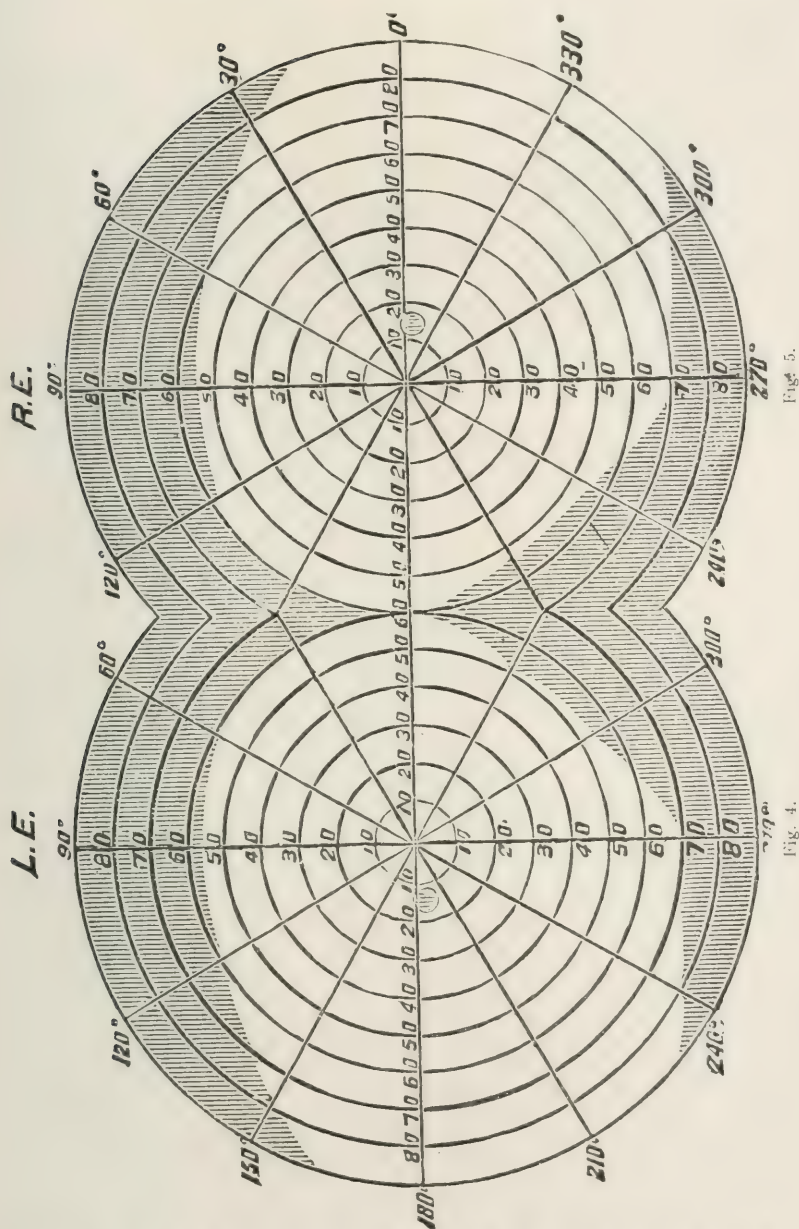


Fig. 5.

Fig. 4.

ciated. Fig. 4 shows the visual field of the left eye and much more. It shows the spatial meridians for the left eye which are

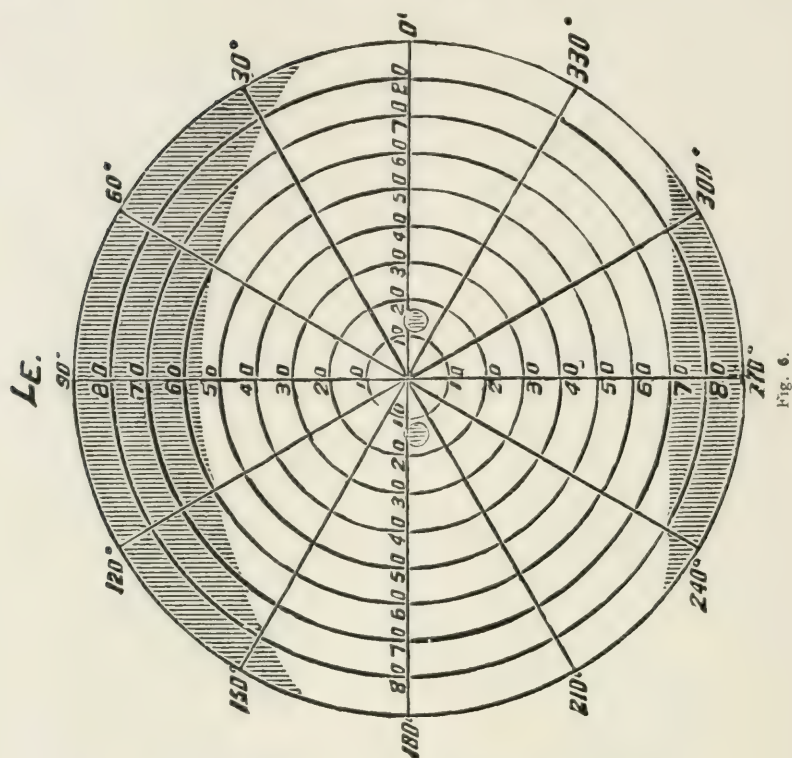


Fig. 6.

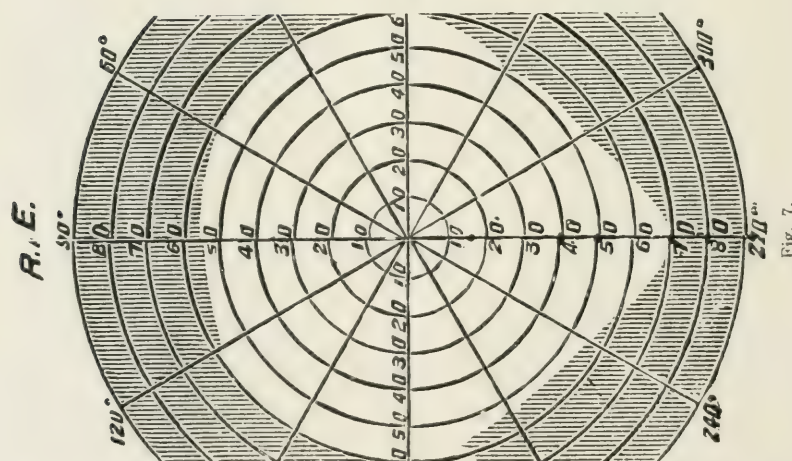


Fig. 7.

in planes with the meridians of that eye; and at the crossing of the special meridians, on the line of the visual axis, is the spacial

pole for the left eye. Fig. 5 shows the spacial pole and meridians for the right eye, and as clearly as it shows the visual field for that eye.

The spacial pole of one eye is the point of direct view for that eye and is therefore on the visual axis, hence, the three poles, the posterior, the anterior and the spacial, are all on the same straight line. In binocular vision the point of direct view lies at the intersection of the two visual axes, which means that the individual spacial poles have been fused, and thus has been created the binocular spacial pole, so beautifully shown in Fig. 6. This figure also shows that the individual spacial meridians have also been fused into binocular spacial meridians. In like manner the two spacial fields of vision have been fused. The overlapping part of these two spacial fields, that is, the part of the combined fields in which both eyes see all objects, is shown in Fig. 7. This figure also shows that there is no blind spot in that part of the field common to the two eyes.

The binocular spacial pole is movable in the four cardinal and in all oblique directions, as is true of the posterior and anterior poles of the eyes, and these always move through the same arc, the anterior poles and the spacial pole in the same direction, while the posterior poles go directly in the opposite direction. In convergence the anterior poles turn toward each other more and more as the binocular spacial pole approaches the face, while the posterior poles recede from each other.

The binocular spacial pole, lying at the intersection of the two visual axes, may be at any distance from the center of rotation. The primary position of the binocular spacial pole is at the point of intersection of three lines, viz., the two visual axes and the line of intersection of the extended vertical and transverse fixed planes of the head, and this is the primary point of view.

Viewable space for the two eyes is shown in Fig. 6 between the larger shadow above and the smaller shadow below. The point of direct view within this space must always be at the spacial pole; points of indirect view may be anywhere else in the visual expanse, but every one of these must lie on some binocular spacial meridian. The direct line of vision—the visual axis—lies in every meridional plane—is the line of intersection of all meridional planes; every indirect line of vision—a radius of retinal curvature

prolonged—lies in the plane of some one meridian. To be in the range of simultaneous view by the two eyes the secondary points must be somewhere in the balloon-shaped field shown in Fig. 7, but in whatever direction they may be, and however close to, or remote from, the pole, they all must lie on spacial meridians.

The purpose of the existence of the ocular muscles and the brain-centers controlling them, is that the point of view may be changed. The field of possible rotation is not quite so large as the field of binocular vision shown in Fig. 7; but so nearly do the two correspond in scope, Fig. 7 may represent both. Within this space the ocular muscles may move the binocular spacial pole from point to point, but always along a binocular spacial meridian. This is true whether the starting point may be the primary point, or some secondary point.

Every monocular rotation plane contains three fixed points, *viz.*, the center of rotation and the first and second points of view. There are also three movable points in every rotation plane, the posterior pole, the anterior pole and the spacial pole. It cannot now be denied that every monocular rotation plane is a meridional plane. The axis of any rotation cuts the center of rotation at right angles to the plane of rotation. The visual axis is the line guided by the recti muscles in rotation planes made steady by the oblique muscles. The visual axis is the line of intersection of all meridional planes. The only plane cutting the center of rotation at right angles to all meridional planes is the equatorial plane; therefore it must contain the axes of all possible ocular rotations. This being true, Listing's plane is valueless. It is not even a plane of reference. The planes of reference are the vertical and horizontal fixed planes of the head.

The binocular spacial pole should be in the primary position and at practical infinity (20 feet) in all tests for heterophoria, that is, the test-object should be on the line of intersection of the vertical and horizontal fixed planes of the head. With no displacing prism before either eye the visual axes intersect at the test object, and this object becomes the binocular spacial pole. Displacing the image in one eye beyond the border of the fusion field, if the eyes are orthophoric, does not interfere with the binocular pole, for both axes still intersect at the object now seen by only the uncovered eye. As to the lateral recti muscles this is shown by

the false object standing directly beneath the true when the retinal image has been displaced upward by a 6-degree prism, base up. As to the superior and inferior recti, the orthophoric state is shown by the false object standing level with the true, the retinal image having been displaced nasalward by a 10-degree prism, base in. In both these tests the visual axis of the eye under test has continued to intersect its fellow at the test object, which object has remained the binocular spacial pole. When there is heterophoria it will be shown as to kind and amount by these tests. Displacing the image in one eye directly up 6 degrees takes every basal or fusion brain center off its guard, and the eye under test turns into position of rest for all the recti and also the obliques. But while the image is thus displaced only the internus and externus of that eye are to be studied. If the internus of that eye is too strong the spacial pole for that eye will leave the spacial pole of its fellow and will move towards the opposite side. The false object, although displaced directly downward, will appear to be removed towards the corresponding side. The rotary prism turned in the direction of the displaced pole will carry the false object in that direction until it reaches the vertical spacial meridian, when it will appear to be directly under the true object. If when the 10-degree prism has been placed, base in, before one eye, the superior rectus of that eye being too strong will carry the spacial pole of that eye up, and the false object will be below the level of the true. The rotary prism set for measuring such error can be made to carry the false object up until it reaches the displaced horizontal spacial meridian, when it will appear to be level with the true object. During the above tests of heterophoric eyes there has been no binocular spacial pole. On removing the phorometer the basal of fusion centers at once compel the weak muscles to pull the eye into harmony with its fellow, and thus they recreate the binocular spacial pole. The importance of one spacial pole remaining on the line of intersection of the extended vertical and horizontal fixed planes of the head while measuring the swing of the spacial pole of the eye under test, has been emphasized in all my writings for the past twelve years. I have not spoken too strongly against the use of all binocular phorometers, which take both spacial poles away from this line in heterophoria and remove the binocular pole from it when there is orthophoria.

By taking a horizontal line for a test object the condition of tonicity of the obliques can be detected by placing a 6-degree prism, base up, before one eye. This will throw the retinal image of the line upward in that eye and a false line will appear under the true. The uncovered eye should fix the line seen by it; that is, the image of its line should lie on the horizontal retinal meridian of that eye, thus making the line itself coincide with the horizontal spacial meridian. If the obliques of the eye under test have equal tonicity there will be no tilting of the spacial meridians of that eye and the false line will appear parallel with the true line. If the superior oblique of the right eye is wanting in tone the spacial meridians will turn on the pole as a pivot, and in the direction of the motion of the hands of the clock, and at the same time the false line will incline towards the opposite side. This declination cannot be measured by the rotary prism. To measure cyclophoria a binocular instrument is necessary.

If Helmholtz's anterior and posterior poles were correctly located, and if his nodal point had the right to exist, there could be no binocular spacial pole and meridians, except in the ideal eye, as can be easily shown by Figs. 8 and 9. The spacial pole for each eye must be in a straight line with the poles of the eye, hence it would lie on the so-called optic axis extended. If the visual axis is 5 degrees nasalward for each eye, when these are converged the spacial poles will be 10 degrees apart, and there will be no coincidence of vertical and oblique spacial meridians.

GEORGE CUVIER HARLAN.*

(CLARUM ET VENERABILE NOMEN.)

By CHARLES A. OLIVER, M. D.,

PHILADELPHIA.

Dr. George C. Harlan, a member of our board of attending surgeons, died on the 26th of September, 1909.

Dr. Harlan was born in Philadelphia, Penn., on the 28th of January, 1835. He was a son of the distinguished physician and scientist, Dr. Richard Harlan. In 1855 he received the degree of B. A. from Delaware College; obtaining the master's degree three years later. He graduated in medicine from the University

*Read before the Wills' Hospital Ophthalmic Society.

of Pennsylvania in 1858, his inaugural thesis being upon the subject of the "Iris".

On the 6th of April, 1857, apparently several months before he graduated in medicine, he was appointed resident physician at Wills' Hospital. From 1861 to 1864, he enjoyed a full surgeoncy, returning to active work in the same capacity in 1868, and remaining uninterruptedly in office for twenty-three years, when he was made consulting surgeon to the hospital, which post he occupied until the time of his death.

At the beginning of the War of the Rebellion, in 1861, he was appointed an acting assistant surgeon in the United States Navy. In September of the same year he was made surgeon in the Eleventh Pennsylvania Cavalry. In June of 1863 he received the post of acting medical inspector, followed in five years' time by the position of pension examining surgeon.

In 1875 he became ophthalmologist (afterwards consulting ophthalmologist) to the Pennsylvania Institution for the Instruction of the Blind, at which place he made many scientific investigations and did much useful clinical work. His interest in the welfare of the eyes of the children there placed under his charge never lessened.

Four years later he became connected with the eye and ear department of the Pennsylvania Hospital, which he raised to the high standard of efficiency that it at present maintains.

His ophthalmic work, so cheerfully done at the Pennsylvania Institution for the Deaf and Dumb as consulting ophthalmologist, was commenced in 1883 and continued for quite a period of time.

He had the honor of occupying the first chair of ophthalmology at the now well known Philadelphia Polyclinic and School for Graduates in Medicine. His remarkable teaching abilities will be long remembered by many of his students. His exposition of the subject was properly limited to real practicalities, no attempt for self-laudation or exhibition of rapid and useless (and, as we have too often seen, destructive) operative procedure, ever being made.

Among his most important memberships in societies may be mentioned: The College of Physicians of Philadelphia, in 1865; the American Ophthalmological Society, in 1873; the International Congress of Ophthalmology, 1876; the Philadelphia County Med-

ical Society, in 1876, and the American Otological Society in 1882. He was a member of the American Medical Association.

He enjoyed many honors. In 1885 he was made a member of the Committee on Library of the College of Physicians of Philadelphia; in 1893 he was elected president of the American Ophthalmological Society, and in 1904 he was appointed chairman of the Section on Ophthalmology at the Universal (Louisiana Purchase) Exposition, held in St. Louis, Mo.

His contributions to his special branch of medicine have been important and numerous. For a long period of time his little book entitled "Eyesight and How to Care for It," published in 1879, enjoyed a large and useful circulation. His two articles on "Diseases of the Eyelids" and "Operations Performed Upon the Eyelids," in the third volume of Norris and Oliver's "System of Diseases of the Eye," must be ranked among the highest and the most practical expositions of the subject that we have in ophthalmology. At the time of his death he was associated with the editorial staff of the widely known journal, "Ophthalmology."

As an operator he stands *par excellence*, as one of the most careful, the most conscientious and the most successful of all special surgeons. This the memorialist well knows from a long personal experience during which he had been personally associated with him in much of his operative work. He was ever eminent for all manner of important hints, judicious helps, and best methods of procedure. Always calm amid danger, sure as to action, and oftentimes turning an apparently disastrous result into an advantageous one, he was *facile princeps*. The cunning of his hands was constantly in absolute correlation with deliberate, and yet rapid, judgment. Many a time when, through some misadventure, an apparently smooth piece of operative work has necessitated an impromptu difference of action, has he quickly discussed the modification, and made the change in such a manner as to give the utmost good of result. It was a pleasure for any conscientious and progressive man to be near and with him under such circumstances (and now, when often alone, or in association with fellow colleagues, does the memorialist find this good and great man's advice and fine counsel come echoing back to him. For one, he is and shall be forever grateful for many acts of loving affection, help and kindness).

As a man he was gentlemanly, noble and unassuming. He knew true friendship in all of its meanings. His greatest preferences were conversation with a few companions of the highest grade, culture and refinement, perusal of a book of biography, ethics or travel, or a ride along the country byways amid nature and all of her beauties.

His death—an accidental one, occasioned by a fall from the back of his favorite horse a few days before—stopped his chosen work, took him from us, and ruined his hoped-for happiness of an undisturbed and unimpaired old age in a quiet home near those who cared for him and loved him.

Eheu! Fugaces, Labuntur Anni.

TENDON-TUCKING OPERATION.

IMPROVEMENT OF MY ORIGINAL TENDON-TUCKERS AND IMPROVED
TECHNIC IN THE OPERATION.

BY D. MILTON GREENE, M. D.,
GRAND RAPIDS, MICH.

(Illustrated.)

It is generally conceded, I believe, that the writer originated the tendon-tucking operation and the first tendon tuckers in 1894, and published his first paper on the subject in the OPTHALMIC RECORD in September, in 1899, in an article entitled, "Correction of Divergent Strabismus" by a new method and new instrument. In said article I described the new operation of tendon tucking and my invention of the tendon tuckers. Since that time I have improved the tendon tuckers as follows: A shoulder is made at the junction of the blades and tines (see photo), which prevents the tendon slipping back upon the blades. The tines are made at perfect right angles to the blade, and of even size from shoulder to point, so as to prevent rotating the eye up or down in making the tuck.

The milled nuts are both worked from the right hand side so that in standing facing the patient the right hand can be used in its adjustment.

I have improved the technic of the operation as follows: The skin of the face and lids having been cleansed and the conjunctival sac rendered sterile, the tissues are anesthetized by + per cent solution of cocaine dropped into the eye and a 2 per cent solution

injected beneath the conjunctivae in the field of operation. Inserting the speculum, the lids are widely separated. Raising the conjunctiva with fixation forceps, with curved scissors a semi-circular flap is made from near the corneal margin, extending the upper and lower angles of the incision back as far as Tenon's Capsule, thereby forming a flap sufficiently wide to give free access to the rectus tendon and to be out of the way of the tines of the tucker, which are about 8 mm. in length.

The flap is dissected back, exposing the clean tendon. The blades of the tucker being widely separated, the tine of the straight blade is passed beneath the tendon from above, the tine of the angular blade resting upon the tendon near its insertion. Now by gradually turning down the milled nut or pressing together the blades, the tine on the angular blade is carried beneath the tine on the straight blade, carrying with it the tendon, thereby making the tuck and rotating the eye to the desired position. An assistant now holds the tucker while the operator introduces the suture, which consists of a number 0 or 00 sterile catgut, about eight inches in length, armed with a fine curved needle at each end. The needles are passed from beneath the tucked tendon between the two tines of the tucker, one needle emerging near the upper and the other near the lower edge of the tendon. The suture is now tied in a surgeon's knot across the fibers of the tendon and the tines of the tucker withdrawn. The blood is thoroughly removed from the operative field, the conjunctival flap replaced and secured by three or four small stitches of fine iron-dyed silk. The lids are now brought together and cold water compresses kept on for a few hours.

The eye is cleansed the next day with boracic acid solution and bandaged.

There is very little swelling follows the operation. In 36 or 48 hours the silk sutures may be removed, as the healing of the conjunctiva will be quite complete by that time.

The tendon-tucking operation may be done in any form of squint where shortening of a lax or elongated tendon is desired. I have performed scores of tendon-tucking operations, beginning in 1894, and with the improved instruments and technic it is easily done and the results universally good.

Some of the distinguishing features of originality in my

operation and points of advantage over other similar operations are the following, some of which were mentioned in my original paper on the subject, which was read before the Section on Surgery and Ophthalmology of the Michigan State Medical Society in 1899 and published in the *OPHTHALMIC RECORD* of the same year.

First: My operation perfectly co-apts the tendon surfaces; other operations do not, but leave a loop of muscle and tendon to become filled with inflammatory exudate, which later becomes absorbed, allowing the tendon to unfold and the eye to resume its original position.

Second: My operation secures the tuck by a suture tied cross-wise of the tendon fibers, including three thicknesses. In other operations sutures are so placed that they include but one thickness of tendon and the stress of the sutures is lengthwise of its fibers, rendering them liable to be split, thereby losing the effect of the operation.

Third: I use number 0 or 00 catgut, absorbable sutures, avoiding the necessity of their removal later.

Fourth: The tendon is not severed from its attachment to the sclerotica and failure to unite would not prevent a second and successful operation, as is the case where the tendon has been cut or detached from the globe.

Fifth: The conjunctival flap covers the tucked tendon and suture, which favors union of the tendon surfaces.

Sixth: Cases of extreme divergence are easiest to operate on because of the increased length of tendon, while more difficult by other methods.

Seventh: With the tendon tuckers the eye can be rotated much or little as desired and there secured by sutures so the effect can be accurately gauged.

Eighth: No large lump is left in the eye and no deformity remains.

Ninth: The tendon tucker making an even fold in the tendon prevents rotating the eye up or down, and thereby avoids producing heteraphoria.

Tenth: No matter how far the tines are separated, they still remain parallel to each other and thereby produce a square tuck in the tendon, which is not true of any other tucker proposed as an improvement over my instrument.

I wish to mention with commendation the zealous work of Dr. Frank Todd of Minneapolis along the line of tendon-tucking operations, and to compliment him on his ingenious and useful tendon tucker, but cannot say that his instrument is as practical as my own.

707 and 708 Ashton building.

REPORT OF A CASE OF BONY DEGENERATION OF THE
CHOROID INVOLVING THE RETINA, CILIARY
BODY, CRYSTALLINE LENS AND
IRIS, RIGHT EYE.*

JAMES W. MAY, M. D.

KANSAS CITY, KANS.

Geo. S. Age 49. German. Occupation, groceryman. Health has always been good, with the exception of an eczema, of 19 years, which he acquired when his occupation was in the sheep and cattle beds at the packing house. Denies specific infection of which there is no evidence. The history of the loss of his eye is vague, the patient not being able to state at what age it took place. He says at the age of $5\frac{1}{2}$ years his eye was burned in some manner from some sort of acid, which was followed by complete recovery. At 18 years, he was helping build a house and was knocked down by a blow on the temple and eye, after which he says he could never see so well. He claims to have lost the balance of his sight 2 years ago, it having slowly faded out. He presented himself September 24 with a history of 10 days of constant, dull pain, tenderness in affected eye and some lachrymation and photophobia in the fellow eye. His eye presented the following: Lids edematous, conjunctiva injected at scerocorneal margin, cornea clear, iris changed in color and bound down completely to lens, pupil contracted to less than pin head in size and cloudy. Impossible to get any dilatation with atropine. Impossible to make an ophthalmoscopic examination. Eye tender upon pressure on upper quadrant, tension +1, vision nil, there being no light perception.

Enucleation advised, which was performed the same day. The operation was followed immediately by a most intense swelling

*Read before the Northeast Kansas Medical Society, October 14, 1909.

of all the orbital contents which was impossible to force back between lids. The swelling, however, disappeared in a few days, after which he made an uneventful recovery. The patient objected to having his eye removed and had his minister present at the operation. After removing the eye, the globe of which was normal in size and shape, I felt what seemed to be a foreign body, and wishing to show the preacher how necessary it was to have the eye removed, I opened the sclera posteriorly and found that the contents had degenerated into a mass of bone. This started in the choroid and involved the retina, ciliary body, crystalline lens, and iris. The vitreous was a muddy fluid which flowed out upon opening the sclera. The sclera and cornea are healthy looking and not involved in the process.

In hurriedly looking up the literature, I find that Parsons in his *Pathology of the Eye* gives a very comprehensive report of this condition, from which the following is taken. "Ossification of various parts of the eye was early described by Schön in 1838 and Arlt in 1847. The latter considered that ossification of the choroid was really calcification of exudate between the choroid and retina. Hulke, in 1857, first proved the occurrence of bone in the eye and Forster first figured typical bone in the choroid with definite Haversian systems. Pagenstecher, 1860, proved that the bone originates in new formed fibrous tissue or in the normal tissues after they have undergone atrophic changes, and that it grows in the same manner as the normal periosteal bone.

"Knapp, 1871, arrived at the conclusion that the exact site of origin was the choriocapillaris, and that the bone formation usually ceases at the ora serrata. He further stated that the sclerotic, retina, vitreous and lens do not undergo ossification. This latter statement was proven incorrect by Schiess-Gemesseus, 1873, who, however, showed that it usually arose in the masses of fibrous tissue which replaced the atrophied choroid.

"Ossification is the final stage of degeneration of the organized inflammatory deposits in plastic choroiditis. It may, therefore, be found in any of the conditions which give rise to wide spread chronic choroiditis, but especially frequent in cases in which cyclitis has been a prominent feature. It is hence most often observed in shrunken globes. In this case, however, no such condition of the globe existed, it being as large and well formed as is

usual. It occurs at all ages, from childhood (11 years) up to extreme old age (102 years). The time required for the growth of the bone is, in most cases, at least several years, but Schiess-Gemesseus records a case in which bone was found in the choroid of an eye that had been normally functional only ten months before, and Leslie Buchanan in the eye of a boy ten weeks after injury."

Reports of Societies

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA

Forty-ninth Annual Session, Held in Philadelphia, Sept. 27-30,
1909—Section on Eye, Ear, Nose and Throat.

Tuesday, September 28th.

The Ocular Manifestations Associated With the Intracranial Lesions Complicating Aural Disease.

The chairman, Dr. William Campbell Posey, Philadelphia, called the section to order at 2:05 p. m.

Dr. S. Mac Cuen Smith, Philadelphia:

Intracranial lesions complicating acute middle-ear disease are, fortunately, of comparative infrequency. We are still very deficient in ability to locate the majority of lesions involving the interior of the skull. Researches in brain localization, hematology, bacteriology, radiography and ophthalmology have all aided in rendering this problem less difficult. Ocular symptoms, with the exception of nystagmus are of definite significance to the extent that they appear to develop only when otitis has involved the tissue within the cranial walls. The importance of the association of the eye with the ear through their nervous connection has been largely overlooked in the past. Papilledema is a valuable diagnostic symptom of meningitis but is not always present. In every case in which there is suspicion of the existence of an intracranial lesion following or accompanying disease of the middle-ear an examination of the fundus of the should be made, even though the sight be perfect. In the majority of aural affections involving the interior of the skull, if we wait for the appearance of diagnostic symptoms, we run the risk of losing our patients.

Eye symptoms, like blood examinations, should not influence the diagnosis of an intracranial lesion in the presence of other distinctive symptoms.

In brain abscess, ocular symptoms may be absolutely lacking or they may occur so late as to make it impossible to wait for their appearance.

In meningitis ocular symptoms are frequently present but variable. In extradural abscess and sinus thrombosis there are no eye symptoms unless the condition is extremely far advanced. Laby-

rinthinis usually has nystagmus as a constant symptom from the beginning of the inflammation. For diagnostic purposes, the eyes should be subject to frequent examinations by an expert in all severe aural diseases.

DISCUSSION.

Dr. S. Lewis Ziegler, Philadelphia: The interrelation of the eye and the ear is still a *terra incognita*. From the aurist's point of view the ocular symptoms arising from otic disease are seldom pathognomonic. The most important ocular manifestations are those occurring as sequelae of pressure edema of the nerve head. Motor disturbances are of a more complex character and manifest themselves either in the form of nystagmus or as muscular palsies. Nystagmus frequently originates in irritation of the internal ear. Muscular palsies may occur during the height of the middle-ear inflammation or may result from operative procedures. Temporary amaurosis may occur, usually in the homolateral eye, but sometimes in both eyes. The septic processes may originate grosser lesions, such as exophthalmos, orbital cellulitis, periorbital abscess or panophthalmitis.

Dr. H. F. Pyfer, Norristown: The literature is so filled with mention of eye conditions associated with ear diseases that one would be led to believe that they are very closely associated, yet, although I make a habit of examining the eye ground in all ear cases, I have been disappointed by failure to find associated lesions.

SYMPOSIUMS RELATIONSHIP BETWEEN ACCESSORY SINUS AND OCULAR DISEASE.

How May Inflammations of the Accessory Sinuses of the Nose Occasion Inflammation of the Orbit and Eyeball?

Dr. Howard F. Hansell, Philadelphia: The anatomical and clinical investigations and the symposiums of medical societies in recent years testify to the great interest of the subject and have tended to bring together the ophthalmologist and the rhinologist to their mutual advantage and to the benefit of their patients. Disease of the orbit secondary to disease of the sinuses should not be confused with affections of both dependent upon a common cause. Diseases of the accessory sinuses are communicated to the orbit by the orbital walls, by the veins and lymph channels and by continuity of tissue and give rise to bony tumors, soft tumors com-

posed of pus retained in a sac by the orbital periosteum and orbital cellulitis and abscess, either metastatic or direct other serious and fatal eye affections. Nasal obstruction is the cause of chronic conjunctivitis and superficial and deep keratitis. Persistent headache and asthenopia unrelieved by ocular treatment, reflex in character and due to nasal causes in many unsuspected cases. This should be borne in mind by the oculist and instead of searching for changes in the refraction which cannot reasonably be regarded as the cause of the trouble, investigate the condition of the nasal mucous membrane and of the adjacent cavities.

The Sphenoid and Ethmoid Sinuses in Their Relation to Ophthalmologic Diseases.

Dr. D. Braden Kyle, Philadelphia: The normal and anatomical relation of the sphenoid and ethmoid sinuses to the orbit was taken up. The importance of variation from the normal, first, as anatomical irregularities regarding size and position, and, second, pathological, structural alterations. The significance of the x-ray as a means of diagnosis and prognosis. The importance of careful intranasal examination. Primary and secondary lesions. Report and exhibition of cases and x-ray plates.

Some Ocular Symptoms Caused by Intranasal Diseases.

Dr. John F. Culp, Harrisburg: Many ocular symptoms of an obscure character are often caused by intranasal diseases in which intranasal pressure is a predominant factor. Removal of this pressure by nasal treatment, if not too long delayed, gives immediate and permanent relief of ocular symptoms. Citation of cases to prove this theory.

The Differential Diagnosis of Orbital Affections Due to Sinusitis; the Report of a Case of Thrombosis of the Cavernous Sinus.

Dr. Wendell Reber, Philadelphia: There is more evidence to-day than ever before that anatomic and metastatic phases of orbital disturbances do not occur spontaneously but are the direct result of previous rhinologic disease. These disturbances may be inflammatory or noninflammatory. Of the former are periostitis, optic nerve disorders, orbital cellulitis, orbital abscess, brain abscess and thrombosis of the cavernous sinus; of the latter are edema of the lids and chronic distension of the walls of the sinuses giving

rise to crowding of the orbital contents. In cases of suspected sinus disease exhaustive and repeated rhinologic examination should be made.

DISCUSSION.

Dr. William A. Hitschler, Philadelphia: While the diagnosis of sinus disease and its relation to ocular affections are often established with comparative ease, it frequently happens that this is a matter of great difficulty. The many anatomical anomalies of the sinuses still further complicate the diagnosis. A right sided optic neuritis may have its origin in the left sphenoid cavity or the left ethmoidal labyrinth. It is hoped that the x-rays may ultimately enable us to make a diagnosis with confidence.

Dr. S. D. Risley, Philadelphia: Years ago general surgeons called the attention of medical men to the great danger to life of suppurative diseases about the nostrils and upper lip. I think the region of the orbit should also be included in this. In 1896 there occurred in my own family a fatal case of thrombosis of the cavernous sinus due to a pimple on the malar region. At that time I searched for an explanation of the edema of the eyelids which occurred in that case but found only a slight reference to it and that in Fuchs' book. We all know that since then many cases of this affection have been reported. Before undertaking surgical interference in the region drained by the ophthalmic vein into the cavernous sinus we should always have a picture of the possibility of thrombosis of this sinus in mind. Many of the cases of acute middle ear disease will do well if treated by rest in bed and such drugs as aconite, belladonna and salines and in this way surgical interference may be avoided in cases in which it seemed at first to be necessary.

Dr. W. Campbell Posey, Philadelphia: A careful ophthalmoscopic examination is of great importance in sinusitis of the ethmoidal and sphenoidal cells. I believe the ophthalmologist treats quite a number of cases of sinusitis in the belief that he is dealing with errors of refraction. The relief from atropine in such cases is not due to putting the ciliary muscle at rest, but to drying up the secretions in the sinuses. The fact that in a case of orbital cellulitis the nasal examination is negative should not be regarded as evidence that the trouble is not due to sinusitis. One should

never undertake operation in these cases unless he is prepared to enter the sinuses.

Dr. Ross H. Skillern, Philadelphia: The complications from the sinuses result chiefly from the ethmoid and the sphenoid. The former are mild and the latter severe in their manifestations. There is a form of ethmoiditis characterized by the formation of polypoid masses in the ethmoid cells which causes more mild eye symptoms than all other sinus troubles together.

Dr. S. Lewis Ziegler, Philadelphia: I believe the antrum of Highmore furnishes us with more disturbance than the other sinuses. I am not sure that is due to infection and am inclining to the belief that it is some chemical irritant which keeps up the inflammation in the eye.

Dr. E. B. Heckel, Pittsburgh: It is necessary for us to work together in these cases in order to achieve results. In a case recently under my observation in which there was marked proptosis of the left eye it was only after cooperation with others, including the radiographer, that a diagnosis of gumma could be made by exclusion. Treatment on this basis resulted in complete recovery.

Dr. S. Mac Cuen Smith, Philadelphia: During the early stages of these sinus troubles good results are often obtained and complications which require surgical interference avoided if the patient is put to bed and treated by suitable remedies.

Dr. George W. Johnston, Pittsburgh: More is expected of the x-ray in these cases than should be. They have strict limitations. It is impossible to state when a sinus is obscured whether this is due to an edematous membrane or pus or both. However, if the picture is made with the patient in the erect posture the level of the fluid, if due to pus, will be distinctly seen. The diagnosis is not made by a single examination but by comparison at different examinations, and, unless the radiograms are made under identical conditions, comparisons cannot be made.

Report of Committee on Control of Trachoma in Pennsylvania.

Dr. C. P. Franklin, Philadelphia, Chairman: The Committee on Trachoma makes the following recommendations:

1. That medical inspection of schools and homes be established.

2. That medical inspection of alien employes be undertaken.
3. The introduction of a bill into the next legislature, declaring trachoma a disease requiring quarantine, such quarantine to be at the discretion of the proper medical authorities.
4. The subsequent introduction, in the same legislature, of a bill to establish a state trachoma hospital in or near Philadelphia, to be equally accessible to the port as well as the coal and iron regions.
5. That this committee be continued, with power to act in carrying out the above recommendations.

DISCUSSION.

Dr. Edward B. Heckel, Pittsburgh: If we would report these trachoma cases to the immigrant inspectors who travel about the state looking up undesirable immigrants with a view to deportation, it would assist a great deal, for, if it was found that these persons were afflicted with trachoma prior to coming to this country, they could be deported.

The Relation of the Visual Field to the Investigation of Certain Psychoses and Neuroses.

Dr. George E. de Schweinitz, Philadelphia:

1. There is no form of visual field pathogonomic of neurasthenia, but, other things being equal, a typical fatigue field is an important member of the symptom-complex of this disease.
2. Perimetric examination has a certain value in the differential diagnosis of hysteria and nerasthenia, inasmuch as a typical fatigue field of any of the varieties already named is more likely to be found in a pure neurasthenic patient than in a case of hysteria or hystero-neurasthenia, while a stable concentrically contracted and tubular field, with inversion of the color lines, is a strong indication of hysteria, but such a visual field is not diagnostic of this psychosis and may be produced by conditions already named.
3. An initially contracted but unstable field, i. e., one which continues to contract and develop fatigue phenomena, is apt to be found in patients who exhibit other symptoms indicative of hystero-neurasthenia, if this term is permissible, i. e., an association of the two conditions.
4. Fatigue Phenomena of the visual field are not limited to

the periphery, but may equally well appear in its center, and then constitute an interpretation of macular tire and are equally important from a diagnostic standpoint.

5. Certain varieties of central exhaustion scotomas are with difficulty distinguished from other central sections, the result of mild or attenuated forms of retrobulbar neuritis, as in each instance it is possible that phenomena depend upon an edema of the optic nerve axis near the foramen.

6. Slight forms of macular fatigue, so common in nerasthenic patients, probably explain many of the failures to relieve by glasses the asthenopia, which is so prominent a symptom of many of the patients.

DISCUSSION.

Dr. Charles K. Mills, Philadelphia: Almost every field which has been shown by the essayist can be seen in organic disease of the brain and in psychic disease of the brain without any local lesion or recognizable diffuse lesion. We have in brain tumor concentric contraction of both fields almost identical with those of hysteria. We have the peculiar partial disappearance of the fields not only in brain tumor but in sclerosis and in general paresis. In the differential diagnosis one will have to rely upon a study of the case along other lines. It is also likely that in organic disease of the brain there is also at the same time the neurasthenia field for there is nothing so exhausting to the brain as brain tumor.

Dr. Wm. G. Spiller, Philadelphia: If one laid too much stress upon the fixity of the hysterical fields, he would be misled, for, as the anesthetics in other parts of the body vary from time to time, so do the fields vary. Dr. de Schweinitz did not refer to myasthenia gravis, a form of bulbar palsy without organic change. I can not help but think that if the fields in this disease were studied we should have results similar to those in neurasthenia. We have in the pictures shown a pictorial representation of why the eyes should be carefully guarded in neurasthenia.

The diagnosis between central scotomata due to toxines and those due to nerasthenia must be very difficult because of the fact that toxic conditions are often mingled with neurasthenia. I have noticed in my practice that a male who is hysterical is usually alcoholic.

Dr. de Schwerin, closing: I have considered quite elaborately in my paper the development of these fields in organic disease but time would not permit me to give the details. The hysterical field is not one which is brought about by fatigue during the course of examination.

Psychoses Associated With Eye Strain.

Dr. S. D. Risley, Philadelphia: I have observed certain phases of mental disturbance associated with eye strain. In one instance insanity, in others hallucinations, mental delusions and fear of insanity, or loss of mental control. In all of the patients entire relief followed the correction of the ocular strain which was due to defects of refraction, anisometropia, and difficulty in maintaining binocular vision because of some muscular anomaly. In one of the patients a high degree of exophoria made constant, strained attention necessary to avoid crossed diplopia; in three of the patients the fault was hyperphoria which upset the binocular balance. I desire to call attention to the great difficulty presented, in the present state of our knowledge of brain physiology, in reaching any satisfying explanation of how strain upon a group of muscles innervated by the oculomotor should set up a symptom complex essentially psychic in nature. I suggest that the contiguity of the at present accepted location of the oculomotor nucleus, to the primary visual cortex might, through the influence of the vasomotor nerves of the sympathetic, lead to vascular changes in the visual cortex, or that exhaustion or irritation might disturb the transmission of visual perceptions from the primary to the secondary or higher visual, or apperception areas and so disturb the concrete mental conception of visual image.

DISCUSSION.

Dr. Joseph E. Willetts, Pittsburgh: The eye, as associated with functional psychoses affecting the adult of middle life, is to my mind a subject paramount in importance to any other subject in ophthalmology. I have long believed that the functional psychoses are primarily dependent upon underlying, unrecognized natural causes. The almost magical disappearance of isolated groups of symptoms in distant organs after the correction of refraction errors and adjustment of muscle imbalances of the eye seem to me to be due to direct saving of nerve impulses which

were being expended in unsuccessful attempts to compensate. The leak has been stopped and other organs get their normal supply.

Dr. Charles K. Mills, Philadelphia: We must never make the mistake of supposing that the correction of the ocular errors will of itself absolutely cure these patients. It may, as in Dr. Risley's cases, so relieve the pressing conditions as to put the patients in good shape.

Mine Injuries Affecting the Eye.

Dr. John B. Corser, Scranton: Ocular injuries in those employed in the mines receiving early treatment have no more serious prognosis than like injuries received in other occupations. Complete cleansing in injuries due to powder explosions is of first importance. Miners' eyes become more or less insensitive to irritation such as by foreign bodies. Carelessness and inattention through lack of pain is responsible for the large number of infected corneal ulcers in miners. These infected ulcers seem more resistant to treatment than in those of other occupations.

DISCUSSION.

Dr. Wm. M. Sweet, Philadelphia: It is seldom we see in this city superficial injuries because they are treated by physicians in the mining towns. The cases we see are those in which copper has entered the eye. They are sometimes treated by the local physicians for weeks and then are sent to Philadelphia by the physicians or come of their own accord. When copper is in the eye the only means of extraction is by means of the forceps. It is unfortunate that these cases go so long before they are sent for treatment as the foreign body is so bound up by exudate that it is very difficult to remove. As to wounds at the sclerocorneal junction, in the last six weeks three of these cases have come from the mining regions where they had been treated by cold compresses, but at the end of six weeks there was still gaping which required stitching. When a man has lost the sight of one eye at a certain kind of work, he should be advised against returning to that sort of work for in doing so he endangers the other eye. There should be some pension arrangement by which these men can be provided for.

There is no means of ascertaining whether or not there is

a piece of coal in the eye as coal does not make a shadow under the x-rays.

Dr. G. H. Halberstadt, Pottsville: The author has left out the most troublesome and dangerous cases to treat. One of the favorite tricks of the miner is to use a dynamite cap to push down the tobacco in his pipe. That usually means the fingers and thumb and one or both eyes. When the dynamite cap explodes, it is broken into pieces about 1 mm. square and in 90 per cent of cases some of these lodge in the ciliary region and set up an irido-cyclitis.

Conservative Surgery in Ocular Injuries.

Dr. L. Webster Fox, Philadelphia: The treatment of ocular injuries must be approached from a standpoint different from that assumed in injuries elsewhere in the body. This is due to the complexity of the tissues found within a small compass rendering probable the injury to many dissimilar tissues at the same time. Also traumatism to one eye at once puts upon the surgeon the responsibility of maintaining the integrity of the other eye. The treatment of injuries to the eye is gradually being revolutionized and better results will be obtained from such injuries in industrial centers where eye injuries are common and the pendulum is gradually swinging toward the side of conservatism rather than that of hasty enucleation. The teaching that the prognosis of injuries within a zone one fourth of an inch wide encircling the cornea is necessarily grave has not been my experience. I have found that in incised wounds of the eyeball, even in the ciliary region, the ciliary involvement is often minimized or nil provided the incision penetrates between the ciliary processes while a diagonal cut increases the ciliary involvement by extending directly through one or more of the ciliary processes.

After injuries to the eyeball in addition to local antiphlogistic applications sodium salicylate internally is of great value. A patient can take daily a number of grains equal to the number of pounds body weight.

Whenever the enucleation of the eye is indicated I perform Mule's operation. I have done over four hundred Mule's operations without a single case of sympathetic ophthalmic following the operation.

DISCUSSION.

Dr. Edward Jackson, Denver, Colorado (by invitation): I was quite early impressed with the old statement about the danger of small penetrating wounds in the ciliary region as regards the danger of producing sympathetic ophthalmia, so that I have so far as possible sought to give free drainage to penetrating wounds in this region. In extracting foreign bodies I have tried so far as possible to remove with the foreign body the injured tissue adjoining. In magnet extraction I have made as free an incision as possible. I have never had reason to regret preserving or attempting to preserve an eyeball. I have also learned by experience rather than from the literature that minute foreign bodies can be left in the cornea and in the tissues back of the cornea without insuring the loss of the eye.

Dr. W. B. Weidler, New York: I have had very good results from the use of large doses of sodium salicylate. The trouble with some is that they do not use large enough doses. I always work to the physiological limit which I find in some cases to be quite high.

Dr. S. D. Risley, Philadelphia: I am quite sure that many of you save eyeballs now which in former years we made no attempt to save. I have in a measure lost my dread of punctured wounds in the ciliary region. It is folly to try to save an eyeball which contains copper or brass or lead. These substances may be surgically pure in the sense of infection, but they undergo certain chemical changes which are deleterious to the eye and my experience is that I have had to remove such eyes sooner or later. The foreign bodies that we remove with magnets are not the most serious forms.

Dr. G. E. de Schweinitz, Philadelphia: Injuries in the ciliary region are not quite so dangerous as we have been led to think; they are no more dangerous than injuries in some other parts of the eye. Whether an eye can be saved or not depends upon the character of the injury. We are probably saving more eyes now than formerly. I have been using calomel combined with salicylate of sodium recently with very good results. By large doses of sodium salicylate the tendency to sympathetic ophthalmia is distinctly lessened. I wish also to commend the use of conjunctival

flaps for preventing infection of wounds at the sclero-corneal region.

Dr. J. F. Klinedinst, York: I do not remove as many eyes now as I did ten or fifteen years ago. I am able to preserve them by the use of sodium salicylate and simple external disinfectants; also, by using dionin and atropine. I have great faith in sodium salicylate in injuries of the ciliary region.

Metastatic Gonorrhoeal Conjunctivitis.

Dr. William Zentmayer, Philadelphia: Metastatic gonorrhoeal conjunctivitis is of more frequent occurrence than is at present recognized. In cases of bilateral catarrhal conjunctivitis rebellious to treatment inquiry should be made as to the existence of or recent recovery from gonorrhea. In such cases, when a specific urethritis is present, but pathogenic organisms are absent from the conjunctival discharge, it is probable that the case is one of metastatic gonorrhoeal conjunctivitis. Where a patient who has a specific urethritis develops a severe conjunctivitis simultaneously involving both eyes, even though gonococci are present in the conjunctival discharge, the case is probably one of metastatic gonorrhoeal conjunctivitis.

DISCUSSION.

Dr. W. Campbell Posey, Philadelphia: Haab was the first to recognize metastatic gonorrhoeal conjunctivitis. As is the case in rheumatism, the conjunctiva is often the avenue of escape of abnormal fluids from the body. In metastatic gonorrhoeal conjunctivitis, when gonococci are not found in the secretion from the conjunctiva, they may be found embedded in the tissues of the fornix. I have seen several cases of metastatic gonorrhoeal inflammation of the cornea. In these cases it is apt to have an herpetiform character. I have tried anti-gonococci serum in a number of cases, but have never seen any good results from it.

Conical Cornea With a Report of a Case Successfully Operated Upon.

Dr. P. N. K. Schwenk, Philadelphia: Conical cornea is caused by the giving way, by astrophy or some other process, of the middle layers of the cornea until it assumes the form of a cone, the apex being a little below and within the center of the cornea. The process is, no doubt, one of congenital origin, due

to some latent embryological defect which predisposes the cornea to yielding in the direction of the least resistance.

The methods of treatment are designed either to reduce the irregular refraction or to effect a return of the normal curvature. The first is done by optical means and the second by surgical measures. My case, a boy of 17 years of age with vision of 4-60 in the right and 1-60 in the left eye was treated by linear cauterization of the cornea with a platinum cylinder 3 mm. in diameter. After healing the vision was 6-9 in the right eye.

DISCUSSION.

Dr. S. Lewis Ziegler, Philadelphia: Any measure that aims to ameliorate keratoconus deserves most careful study. Refraction of conical cornea requires infinite pains. Keratotomy often yields bad results. A successful result in the treatment of keratoconus depends chiefly upon refraction and cauterization.

REFRACTING OPTICIANS.

Dr. James Thorington, Philadelphia: Reviewed the efforts made by opticians in various states to obtain legislation which would license them to do refraction and summarized the laws to this effect already existing in a number of states. He also dealt in detail with the bill which was defeated in the last session of the legislature in Pennsylvania. He set forth reasons why such legislation should not be enacted. The various "schools of optometry" were discussed and their defects pointed out.

A Plea for the Annual Examination by Specialists of Public School Children for Diseases of the Throat, Nose, Eye and Ear.

Dr. Andrew B. Kirkpatrick, Philadelphia: In New York any child suffering from enlarged, diseased tonsils, adenoids or purulent otitis is excluded from school until such time as these diseases are cured.

Many thousands of children die every year from diphtheria, scarlet fever, mumps and mastoid diseases. Most of these could have been saved had these abnormal conditions been discovered and corrected by perfectly safe operative treatment.

Thousands of children are struggling with adenoid deafness, headaches, retarded mentality and chronic catarrhal conditions

which, undermining their constitutions, prepare a fertile field for the early development of tubercular adenitis from infected tonsils. The local disease often spreads rapidly and involves other organs.

Otherwise bright children are handicapped by more or less continued headaches and general nervousness, often resulting in chorea and other forms of nervous prostration, caused by astigmatism and other ocular defects, all of which can be corrected by suitable glasses.

Were these propositions inaugurated and pushed to a logical sequence, and a few thousand dollars spent judiciously yearly, I believe hundreds of thousands of dollars would be saved to the municipality and state.

DISCUSSION.

Dr. Joseph Neff, (Director of Public Health and Charities) Philadelphia: This subject is of vital importance and one that covers a tremendous area of ground. Last year in 215,298 school children examined in Philadelphia during the school year 1326 were found to have adenoids and recommended for treatment. Of the number of adenoids found in Philadelphia 482 were corrected, that is 30 per cent of the cases found. Of the eye defects 627 cases, or nearly 50 per cent were corrected. A great part of that is done by the Department itself, there having been organized a little over a year ago an Ophthalmological Department in City Hall, according to an ordinance of Philadelphia.

Dr. George M. Coates, Philadelphia: We all know how hard it is to have laws passed compelling vaccination. It would be much more difficult to have laws compelling children to be examined yearly and their defects treated. When children are excluded from school for defects and minor transmissible disease even the Board of Education objects to their losing the time. They may belong to families who are glad to have them excluded from schools. There is in Pennsylvania a Compulsory Attendance law, and, if parents do not send their children to school they are liable to arrest and fine. If the child is excluded for some defect many parents are only too glad to have it excluded and will not have the defects attended to. It seems to me that the time is hardly ripe for the yearly expert examination. The teachers call the attention of the medical inspectors to any gross defects and it seems to me that an examination once every two or three years

is all that is necessary.

Dr. M. V. Ball, Warren: In the county in which I live we have 300 schools separated by several miles and it would require for ordinary inspection of these children six months of one's time. This practical question would have to be met in inspection of school children in country districts.

Dr. S. D. Risley, Philadelphia: I said so much about this years ago that I have been interested in this discussion largely from the standpoint of its development since then. Fortunately, one of the difficulties I met with at that time has in a measure been removed, that is the absolute antagonism of some members of the School Board and of the parents. So that, discouraging as it may seem today from the standpoint of practical application of scientific knowledge, decided progress has been made.

Presenile Syphilitic Cataract.

Dr. Edward Stieren, Pittsburgh: The probability of syphilis as an etiological factor in the causation of early cataract is entirely ignored by the majority of writers. It is generally accepted that repeated inflammatory attacks of the uveal tract, nearly always syphilitic, may give rise to cataract. I have observed this several times in patients with a clear history of syphilis. These cases improve under antisymphilitic treatment.

DISCUSSION.

Dr. Edward A. Shumway, Philadelphia: It is well known that iritis and cyclitis, diseases frequently due to syphilis, are often the cause of cataract. Cataract due to choroidal disease is prone to advance rapidly. Whether antisymphilitic remedies will check the progress of these opacities can be determined only by trial.

Restoration of the Upper Eyelid by Skin Graft With Report of Three Cases.

Dr. Edward B. Heckel, Pittsburg: Skin grafting in these cases I rarely done and the technique is usually faulty. In my cases I used Thiersch grafts from the arm. The upper lid was drawn down and stitched to the cheek to increase its surface. The graft taken was three times the area of the surface to be covered. After contraction occurred the cosmetic result was excellent.

DISCUSSION.

Dr. G. B. Jobson, Jr., Franklin: I believe it is better to use grafts without pedicles wherever possible. Local is preferable to general anesthesia. I use 2 per cent cocaine with 1-2000 adrenalin, injecting it into the lid. Hemorrhage from the denuded lid must be controlled absolutely or the graft will not adhere. The graft must be two or three times the area to be covered.

Dr. William Campbell Posey, Philadelphia: I would much rather use a pedicle flap than Thiersch grafts. The pedicle flap is better nourished and, if carefully planned and massage is used, the cosmetic result is good. I prefer local anaesthesia, but use 2 per cent solution of novacain as it is less toxic than cocaine. I do not think it is necessary to have every bleeding point controlled. The quicker you get through with the operation the more certainly will healing occur.

Isolated Paralysis of the External Rectus in Acute Otitis Media.

Dr. W. Hardin Sears, Huntingdon: This condition has been reported by a number of observers. In one series of 257 cases of paralysis of the external rectus it was due to otitis media in two cases. In a case of otitis media, which I observed, paralysis of the external rectus occurred coincidently with acute articular rheumatism. Complete recovery followed the use of sodium salicylate and pilocarpine.

DISCUSSION.

Dr. T. B. Schneideman, Philadelphia: Paralysis of the sixth nerve is a rare complication of otitis, and is most frequent between 5 and 15 years of age. One bilateral case has been reported, but in this case the ear disease was bilateral. The mortality in collected cases has been 16 per cent. The most certain preventive measure is early and adequate paracentesis with proper drainage.

Recovery of Vision in an Amblyopic Eye After Four and a Half Years of Blindness. A Contribution to the Question of Amblyopia Exanopsia.

Dr. Clarence M. Harris, Johnstown: The case I report is that of a boy of 7½ years who had a history of marked internal strabismus and poor vision with the right eye since 3 years of age. The vision of this eye was found to be 2/45. Injury to the left eye

rendered it almost sightless. After the use of glasses for a year and a half the vision of the right eye was found to be raised to 6/7.5.

DISCUSSION.

Dr. Wm. T. Shoemaker, Philadelphia: Disuse of an eye for a considerable length of time as disuse of any other organ, would naturally be expected to cause in that organ a lack of facility and practiced operation in its functional action. If this is what is to be understood by amblyopia exanopsia, I see no reason why a return to use and exercise should not result in a variable measure of improvement.

The case reported by Dr. Harris would seem to represent such a condition, and the most excellent result which he has obtained furnishes evidence to the effect that—

First—The amblyopia was not congenital.

Second—The eye was free from structural defect, and

Third—That it fell into disuse owing to some lack of harmony or co-ordination in the binocular visual act.

If these three facts are true concerning this eye, I cannot see why when the superior eye was withdrawn from the field and the patient forced to depend upon the heretofore inferior eye, the result should not have been just as recorded.

Disuse of an eye of the kind associated with amblyopia should not, I think, produce structural changes. The retinal cells have continued to receive their normal stimulus—*light*, and have had no cause to atrophy as they would perhaps were the eye kept for a long time in absolute darkness.

The fault then must be one of reception and interpretation by the higher centers. We know, furthermore, how facile and apt these centers are at times. The false image in diplopia can generally be suppressed without much difficulty, and with a little practice, the image from either eye can be eliminated before even we are conscious of it. This we do every day when we use the ophthalmoscope or microscope with both eyes open. We produce instantly what might be called a voluntary amblyopia.

Persistence in this monocular suppression would probably cause in time a fixed amblyopia, but without structural change, and a return to functional activity would just as probably follow the necessity for such.

In the case of congenital amblyopia, I doubt very much if there can be any considerable improvement in the visual acuity such as is recorded in Dr. Harris' cases. Such cases are more than likely associated with structural change. From the standpoint of prognosis, therefore, it becomes most important to determine whether the case of amblyopia is congenital or acquired, before venturing a positive opinion on the ultimate result in any individual case.

CHICAGO OPHTHALMOLOGICAL SOCIETY.

Meeting of October 11, 1909.

The President, DR. FRANK ALLPORT, in the Chair.

Punctate Retinitis.

Dr. O. Tydings exhibited a patient, 17 years old, first seen August 14, 1909, who presented in the retina between the superior and inferior temporal arteries, an opaque edematous area. The macula had the appearance of central thrombosis. Vision was 20/50. Two days afterward vision had fallen to 12/200 with a central scotoma for color and it continued to diminish until within three or four days it was down to fingers at two feet. Then it commenced to improve and now vision is 20/40 plus. The patient accepts a low sphere, about plus 50, the retina has assumed its normal appearance, except for a few punctate spots. Urinalysis was negative and there was no constitutional taint so far as could be ascertained. There were a few spots in the left eye, but not of the same kind. The treatment consisted of a course of mercury and iodine internally.

DISCUSSION.

Dr. Henry Gradle said that the term *retinitis punctata* is applied to varying conditions. Continental writers apply the term to *retinitis pigmentosa*. Cases of this kind are of a transient character; they are not an entity either etiologically or pathologically. In this case the lesions seemed to be in the retina, although in some cases it involves the choroid. The logical thing is to continue the alterative treatment.

On inquiry as to whether there was any sinus trouble, Dr. Tydings replied that there was not.

Dr. C. A. Westcott has seen a few cases, such as those men-

tioned by Dr. Gradle, but there was not such a marked reduction in the vision as in Dr. Tydings' case.

Dr. Tydings said that the lesion in this case was very marked and vision was markedly reduced. Duane says that these cases have the same pathologic basis as retinitis proliferans, but that did not seem to be true in the present case, which Dr. Tydings believes to be an edema which will clear up entirely.

Complete Traumatic Aniridia.

Dr. Paul Guilford presented a case of complete traumatic aniridia.

John W., aged 22 years, carpenter, was first seen at St. Luke's Hospital, August 12, 1908. On the same date, while at work under a freight car, the boring bit he was using slipped from his hand as he withdrew it from the wood, the point of the bit striking and penetrating his left eye, producing a lacerating wound about 5 mm. in length, running perpendicularly about midway between the center and temporal limbus of the left cornea. The anterior chamber was filled with blood. Conjunctival engorgement. Tension soft. Vision equaled 0. He was put to bed and the eye treated with boric irrigations, atropin and argyrol. The following day the wound had closed and there was very little inflammatory reaction. No pain. The blood clot in the anterior chamber rapidly absorbed and it was then discovered that the iris was entirely absent, having been completely torn away at the time of the injury. The lens was uninjured and could be seen clearly in its entire outline in its normal position. The vitreous was clear and the fundus normal. The eye made a rapid and uninterrupted recovery and the patient was discharged from the hospital August 29, 1908. Vision equaled 10/200. Scar at site of wound. September 8th with 1.00 S. V. equaled 20/100. September 18th, v. equaled 20/200 plus .75 combined with plus 1.50 axis 90 degrees equaled 20/70. He was told to return to work and report once a week for observation. October 5th, V. L. equaled 20/70 plus .75 combined with plus 1.75 100 degrees equaled 20/40 plus. October 19th, V. L. equaled 20/70 plus .25 combined with plus 1.75 axis 105 degrees equaled 20/30 plus. This correction was ordered for the left eye and was worn with comfort for several months. He had been wearing a plane smoked lens occasionally to protect the eye from bright sunlight.

December 24th a flying nail struck him over the closed eyelids of the left eye. Eye was somewhat inflamed and painful. Under dionin and hot stupes eye cleared but vision was poor with old glass. January 8th, 1909, V. L. equals 20/70 S. minus .50 combined with C plus 1.75 axis 65 degrees equaled 20/30. April 26th, 1909, with old glasses V. equaled 20/50 minus. Without any glass V. equaled 20/30 and no glass seemed to improve vision. Told not to wear glasses for a time.

The character and extent of the injury to the cornea and iris without any injury to the lens is unique in ophthalmic literature.

DISCUSSION.

Dr. E. V. L. Brown thought that this case might be explained on the basis of Foerster's anterior chamber pressure theory. The fluids of the eye are noncompressible, and therefore when it is exerted the root of the iris gives way, and in some cases it goes backward and in other cases it is completely everted. Before the piece of steel entered the eye the aqueous was forced back against the iris, which gave way and then came out through the opening made by the steel.

Dr. Guilford replied that this was a case where the iris was torn away completely with dislocation of the lens beneath the conjunctiva. Not a trace of the iris could be seen. The lens was removed and the eye recovered.

Dr. Henry Gradle inquired if Dr. Guilford studied the relationship of the ciliary processes to accommodation in this case.

Dr. Guilford replied that he had not. Dr. Brown's explanation he believed to be a good one. He has never seen a case like this before where the iris was entirely absent without any injury to the lens. The rapid change in the refraction was interesting, going from 10/200 to 20/30 in less than eight months. That was probably due to the fact that the corneal wound had united and the action of the lids smoothed down the irregularity until it was practically normal.

Congenital Aniridia.

Dr. Harry W. Woodruff presented a case of B+ type of Congenital Aniridia, in a girl, 9 years of age, who has never been well. There is a slight trace of the iris below. The peculiar condition of the lens makes it difficult to determine whether or not

it is luxated. The upper border of the lens appears to be tilted forward.

Steel in the Lens With Unusual Features.

Dr. Guilford also presented the following case of steel in the lens with unusual features:

Robert J., aged 16, machinist helper, was seen April 28, 1909.

January 18, 1909, was working at punch press when scrap flew into left eye. Seen by company surgeon following day. No foreign body. Eye slightly inflamed, cornea abraded. Gave boric and argyrol. January 23, 1909, dismissed cured, V. equaled 20/30. March 19, 1909, was heating rivets when accidentally struck in left eye by tongs and hot rivet. Rivet blistered both lids of left eye, but he did not think the eyeball was injured. Under care of company surgeon burn of lids healed. For a week after accident could see O. K. with left eye but since then the vision has gradually failed until now can see only outline of objects as if through a fog. No pain in eye and eye has not been inflamed.

Examination: Oblique illumination shows small pinpoint scar near center of left cornea where foreign body entered eye. With pupil dilated the lens shows beginning cataract and in anterior part of lens substance about at nasal margin of normal sized pupil can be seen a splinter of steel perhaps 2 mm. long and $\frac{1}{2}$ mm. wide, imbedded in lens substance. Eye quiet. April 29, 1909, operation at St. Luke's Hospital, under cocain. With giant magnet drew steel from lens substance into anterior chamber until resting on iris. With keratome made incision at lower limbs and with magnet extracted steel. Some prolapse of iris which was cut off. April 30, 1909, corneal wound closed, anterior chamber reformed edges of iris coloboma free. Lens opaque. Practically no reaction from operation. May 6, 1909, dismissed from hospital, wound firmly healed, eye white and quiet; traumatic cataract. May 12, 1909, sent to hospital for cataract operation. May 13, 1909, operation. Keratome incision at lower limbus, cystotome used to tear anterior capsule. Gentle pressure followed by escape of opaque lens substance. Clear pupil. May 14, 1909, wound closed. No reaction from operation. May 18, 1909, dismissed from hospital to come to office. May 20, 1909, eye white and clear. S. plus 10.50 combined with plus 1.00 axis 165 equaled 20/30 minus. May 26, 1909, dismissed. Eye white and quiet.

Dr. Guilford believes the steel chip probably entered the eye at the time of first injury and remained quiet in lens substance, hidden from sight by the iris, until the second injury four months later hastened the slowly forming cataract.

Dermoid Tumor of the Conjunctiva.

Dr. D. Salinger exhibited a patient having a dermoid tumor of the conjunctiva. The tumor springs from the cornea and has a puckered appearance. Hair grows from its surface. The case is congenital. There is also a wart-like growth in front of the left auricle.

DISCUSSION.

Dr. Willis O. Nance has observed three cases, the tumors all occurring at the sclero-corneal margin. The first case was one presented to the society several years ago. The second case was one shown to him at the Illinois Eye and Ear Infirmary by Dr. Leenheer a few weeks ago, and the third is Dr. Salinger's case. Dr. Nance had just learned that another case entered his service at the Infirmary today, so that he does not believe them to be as rare as one might suppose them to be.

Dr. Salinger said that this was the second case he had seen, and yet only a few cases are recorded in the literature. The tumor is always congenital and does not seem to grow, although sometimes the hairs grow to some length at puberty so that they protrude from the eye and touch the cheek. Out of ninety-seven reported cases, Picket found twenty-seven complicating other malformation, such as coloboma of the eyelids, iris or choroid, and wart-like appendages in front of the auricle, as in the present case, and absence of the auditory meatus. The treatment is total ablation.

Lid Closure Pupillary Reflex.

Dr. C. G. Darling presented a patient 33 years old, who seven years ago contracted syphilis. Two and a half years ago sight became poor. With correction vision was 20/30 in both eyes and with +3 for reading he could read No. 1 Snellen. The pupils are widely dilated, measure 8 mm. in diameter, with no reaction to light and only the slightest reaction to accommodation. The instillation of pilocarpin brings the pupils down to 1 mm; dionin will contract the pupils to about 4 mm. The interesting feature

of the case is that when the lids are held open and one tries to close them forcibly, the pupils become small. The findings in the nervous system are negative. The reflexes are normal. There are a few punctate opacities in both eyes. Irritation of the sympathetic is negative.

A Case of Bulbous Keratitis in a Glaucomatous Eye Following Cataract Extraction.

Dr. A. T. Wanamaker presented Mrs. R. J., age 55, who consulted Dr. Casey Wood on account of failing vision in February, 1896. Examination of her eyes showed immature nuclear cataracts. In June of the same year both cataracts were extracted but considerable soft lens material remained in right eye. In a few days plus tension and symptoms of secondary glaucoma developed in the right eye, but soon became quiet under the use of eserine. On being refracted vision of left eye equaled 20/50 and right eye equaled 20/20 minus. For near J. VIII., L. E.; J. I., R. E. In 1905 vision in right eye became cloudy and at times eye was painful, but these symptoms were cleared up by using eserine ointment. In 1906 left eye became painful and vision clouded. In 1908 Zeigler's operation for secondary cataract was performed on this eye. January 1, 1909, vision left eye with glasses equaled 10/200, vision right eye with glasses equaled 20/20. September 9, 1909, patient came to office and complained that two days prior left eye became red and scratchy. Examination showed a central straining area on cornea and base of cornea seamy. There was considerable pericorneal injection. The iris tissue edematous. Patient given prescription for boric lotion and instructed to use hot applications at home. September 20, 1909, eye much better. Does not stain. September 30, 1909, patient in considerable pain; faints on examining eye. Much lachrymation and some photophobia. Ciliary infection again present. Cornea shows bulla involving lower one-third of cornea. Tension plus. October 5, 1909, patient says eye has felt better since she was here last until yesterday, when eye became painful again. Examination shows superficial and deep ciliary injection, cornea steamy. A bulla 7 mm. long and 4 mm. wide extends from 1 mm. of lower limbus upward in axis 90. The lower half of the bulla is filled with transparent fluid. The iris tissue edematous and there is what appears to be a small cyst connected with the iris and old cataract corneal scar

at the limbal end of the nasal pillar of the coloboma. Vision left eye equals fingers at six inches, tension plus; vision right eye equals 5/200, or 20/20 with correction. Fundus of right eye shows some coupling of optic nerve head but hard to tell if more than physiological. The field of vision, however, shows a marked contraction. Diagnosis of secondary glaucoma.

DISCUSSION.

Dr. J. Elliot Colburn some years ago saw a case of bullous keratitis in an eye that had attacks of glaucoma, which was, however, controlled by eserine. We tried every known means to check the condition, but finally, on account of the extreme pain, the frequency of the attacks and the wear and tear on the patient the eye was enucleated. The lens was the seat of a hypermature cataract that had manifested itself long before the patient came under observation. There was partial detachment of the retina and some deposit in the ciliary region. The chief point in the case was the extreme frequency of the attacks of bullae, about once every four days, and the severe pain. The bullae were broken artificially, or by lid pressure, only to have another appear in the same locality.

Dr. George F. Suker had one case that followed glaucoma with a syphilitic history. Most of the cases he had seen had such a basis.

Dr. Oscar Dodd had an interesting case of bullous keratitis some years ago. There was a history of extraction, but no tension following. The lens was loose and would come forward into the anterior chamber through a dilated pupil. As it was the man's only eye the lens was extracted and a splendid result followed. About two weeks after extraction the bullous keratitis started. The man was under treatment for two or three months and would no sooner be well again than another crop of bullae appeared. Every treatment was tried without avail. Finally the opacity in the cornea became so great that he disappeared from observation.

Dr. Von der Heydt remembered an interesting case occurring in a case of interstitial keratitis. The bullae appeared every third or fourth day. There was a congenital specific history.

Dr. W. A. Mann saw two cases in colored people who gave no history of syphilis. One was a recurring case. In the other case the lesion healed entirely under quinine.

Dr. Wanamaker said that cases recorded in the literature were

accompanied by marked pericorneal injection and the sensation as of a foreign body in the eye. There was no trauma nor eruptive fever in his case.

Effects of Sympathetic Inflammation on Choroid of Second Eye.

Dr. E. V. L. Brown: About three months ago the patient was struck in the eye by a brick. He had a wound penetrating the cornea running from the temporal side downward and inward in an axis of 45 degrees, with incarceration of the iris. The eye was removed promptly, but symptoms of inflammation were already present in the fellow eye and continued for five months, despite mercurial inunctions, salicylates and protecting the eye from the light. About July 1 the eye was free from irritation and has remained so ever since. There may be seen now on focal illuminating evidences of posterior synechiae, but superficial and deep, and in the fundus there is a generalized disturbance of the pigment epithelium in the retina, and in all four quadrants, and half way back to the disc there are small groups, widely scattered, of white flakes of atrophy of choroid, which were described by Hirschberg and Haab as sharply circumscribed small white flakes or dots with no pigmentation, and with retinal veins running over them and with choroidal veins in the background. Some of these spots are fan-shaped, but most of them are round, some occurring in groups or rows, but all in the same general circle in relation to the cornea.

DISCUSSION.

Dr. Von der Heydt saw this case. The pupil did not dilate at all until a 2 per cent solution was used.

Dr. Clark Hawley saw a case many years ago where rather heroic treatment was attempted. Two or three drops of a 1 to 500 bichlorid solution were injected into the vitreous, with the result of saving the eye. The pain was severe, but the eye was saved.

Dr. H. B. Young said that in six cases he had seen only one resulted in changes in the choroid, a case of knife thrust with prolapse of the iris. He saw the patient about a week after the injury. Everything went well, and the eye got almost well. In two days there was redness in the other eye, with iritic adhesions. Active alterative treatment was employed and atropin was instilled. In four or five weeks the eye cleared up. The offending

eye was enucleated when the fellow eye was quiet. Ten years later vision was still good.

Dr. Brown: The field in this case is normal for form and the tension is $8/10 +3$, and Snellen No. 1 at 13 inches. There are 7 degrees of hyperopia, so that the vision is good. Function apparently is not impaired.

Neuroretinitis.

Dr. Clark Hawley presented a girl, 13 years old, with neuroretinitis, who about five years ago had scarlet fever, quite severe, and following this there was some kidney trouble, but not serious. At present the urine is practically normal. The condition of the eyes is that of a neuroretinitis. In one eye the upper portion of the disc showed one or two small hemorrhages. The extension in the retina is not considerable; the disc is not badly swollen. Vision is about $20/70$. There is a considerable error of refraction, something like a $+4$ or a $2\frac{1}{2}$ cylinder, possibly due to the swelling. There is no history of specific trouble or of constitutional disease. The only thing that can be suggested as a cause of the trouble is the approaching period of puberty, which several writers have suggested.

DISCUSSION.

Dr. O. Tydings said that Dr. J. B. Murphy has suggested lumbar puncture in these cases to relieve the brain symptoms, and it occurred to him that this might be a valuable treatment in cases of choked disc such as Dr. Hawley's case seems to be.

Dr. Hawley said that the case was sent to him for diagnosis. He had nothing to do with the treatment.

Steel in Eye.

Dr. J. E. Colburn reported the case of a man with steel in the eye. He struck a hatchet with a hammer and a particle of steel penetrated the cornea at the middle of the lower temporal angle and was projected somewhere into the back of the eye. That afternoon he examined the eye and saw what he supposed to be a foreign body, but owing to the haziness of the vitreous and blood could not determine what it was. The attempt to remove the foreign body with the magnet confirmed its presence. A radiograph was then made and it located the foreign body. Dr. Colburn cut down through the sclera, applied the Hirschberg magnet, and then the giant magnet and the piece of steel flew out. There was no

wound of the lens, little or no reaction, no pain: the vitreous is clearing and everything is going on nicely. Vision is good.

DISCUSSION.

Dr. Frank Allport advocated a few years ago scleral route of removing foreign bodies from the eye, unless they are in the extreme anterior portion of the globe and unless seen within a few hours after the accident, when the original route of entry may be used. The safest and best way of removing steel under these circumstances is by the scleral route.

Dr. Clark Hawley about sixteen years ago reported to the society a case in which he removed the steel from the vitreous by the scleral route, and has since had one other case. In one case he introduced the magnet into the vitreous seven times without causing any disturbance. The eye is perfect and vision is 20/20.

Dr. O. Tydings endorsed the views expressed. He has removed steel by the anterior route and has never seen the slightest ill result, providing there was no infection. He has seen a piece of steel in the eye of a patient who came to be refracted. He noticed some deposits on the posterior capsule of the lens, and inquiry elicited the information that six months before the patient had received an injury to which he paid no attention. The lens was uninjured. He returned some time afterward with a retinitis, and remembering the spots Dr. Tydings examined for a foreign body but got no response, even to the giant magnet. He got well, but two or three months later he had another attack. He again failed to locate the foreign body. More than two years after the injury the steel was located with the X-ray and removed by the scleral route. The eye was removed a few days afterward, although the usual precautions were taken with reference to asepsis. His experience has been that the danger to the lens is practically *nil* if it has not been injured by the steel.

Dr. Henry Gradle fully concurred in the desirability of extracting by the scleral route in cases where you can see the steel and it is back of the equator. He can recall only a dozen cases where there was any reaction at the time, except degenerative change. The others were more or less inflamed. In none of them was there any reaction to the entrance of a well sterilized instrument into the vitreous. The old cases were left intact; the sub-acute cases recovered as much as it was possible to expect them

to do in view of the conditions present at the time of operation. Dr. Gradle could never attribute the slightest injury to the use of the Hirschberg tip. That danger is not as great as the danger of injuring the lens and tearing the iris by getting the foreign body into the anterior chamber by means of the giant magnet.

Dr. W. A. Mann by applying the Hirschberg tip to the giant magnet in one case obtained better control.

Dr. Colburn said that in some other cases he had seen where he removed larger pieces of steel than in this case with the magnet by the anterior route. He had had occasion to regret it. In one case a semilunar piece of steel about 10 mm. long and $2\frac{1}{2}$ mm. in width was brought out through the original wound and in doing it the piece of steel made a complete turn in the eyeball, and the anterior end of it seemed to be fixed. The remote end turned clear around, and in doing so it cut through the lens and was finally cast out through the anterior chamber.

In another case a large ragged piece of steel was brought out through the original wound, and it also, either in going in or coming out, wounded the lens. In the first case a panophthalmitis occurred almost immediately and the eye was enucleated. In this case he was very glad that he did not succeed in bringing it out with the giant magnet through the wound of entrance because he is sure that it would have caused serious trouble.

WILLIS O. NANCE.

Secretary.

Notes and News

Dr. Rob Hesse has qualified in ophthalmology in Graz.

Dr. and Mrs. Albert A. Cannaday of Roanoke, Va., have returned from Europe.

Dr. Samuel Z. Shope of Harrisburg, Pa., has been appointed chief ophthalmologist to the Harrisburg Polyclinic Hospital.

Dr. and Mrs. O. A. Griffin of Ann Arbor, Mich., have returned from Europe.

Privatdozent H. Chalupecky has been made professor of ophthalmology on the Bohemian Medical Faculty in Prag.

Dr. H. Krienes of Barmen, Germany, formerly in Breslau and at that time connected with the "Wochenschrift für Therapie und Hygiene des Auges," is dead.

Drs. Adam Bednarski and Adam Szulislawski, privatedocents in Lemberg, have received the title of professor of ophthalmology.

Dr. Alfred Murray of Chicago was married on September 30th to Miss Enda Schmidt at the residence of the bride's parents, 1893 Sheridan Road, Chicago.

Drs. Robert Sattler and Derrick Vail were recently elected senior oculists on the staff of the Cincinnati Hospital, and Dr. Victor Ray junior oculist.

Dr. W. Likely Simpson of Memphis, Tenn., was married October 27, 1909, to Miss Lenora Balderston, at Mount Ayr, Iowa. After November 8th they will be at home at 739 Jefferson avenue, Memphis.

Dr. Lucien Howe of Buffalo was awarded the medal of the Italian Ministry of Public Instruction for his paper on the measurement of the lifting power of the extraocular muscles presented at the Naples meeting of the International Congress of Ophthalmology.

Prof. Dr. Emil Grosz, general secretary of the recent International Medical Congress in Budapest, and director of the First University eye Clinic, has received the title of K. ungarischen Hofrat.

Drs. Casey Wood and Thomas A. Woodruff were among those named by Mayor Busse of Chicago as delegates to the Conference on the Prevention of Infant Mortality held under the auspices of the American Academy of Medicine, November 11 and 12, at Yale University.

Dr. E. B. Morgan, an ophthalmologist of Paterson, N. J., is said to have received one million dollars as a gift from his brother. It is probable that Dr. Morgan will retire from active practice to enjoy his unexpected fortune.

The following were elected to membership in the Chicago Ophthalmological Society at the meeting held at the Great Northern Hotel on October 8, 1909: Drs. Francis Lane and D. C. Orcutt of Chicago and Chas. A. E. Lesage of Dixon, Ill.

Dr. G. C. Savage of Nashville, Tenn., presided at the meeting of the Southern Medical Association, November 9-11, in New Orleans. Dr. Urban S. Bird of Tampa, Fla., was elected chairman of the section of ophthalmology, and Dr. E. C. Ellett of Memphis, Tenn., secretary.

Dr. Frank C. Todd of Minneapolis did much to forward the education of the medical profession in the crying need for adequate prophylaxis in ophthalmia neonatorum in a paper contributed to a symposium on this subject at the meeting of the Minnesota State Medical Association at Winona, October 12-14, 1909.

The *Annals of Surgery* issues its fiftieth volume. On January 1, 1885, there appeared in the literary medical world the first number of a new journal, given up entirely to general surgery. This radical departure from the old lines had the full endorsement of a large number of the leaders in surgery, both in Great Britain and the United States, among whom was Lord Lister, whose name led all the rest on the title page. The seed was good, the soil fertile, and the journal grew and prospered. Today it's the *Annals of Surgery of Philadelphia*. In December it blooms—blooms in full, and its subscribers will be treated to a choice collection of twenty-two original articles in the form of a jubilee number.

Eminent surgeons from England, Scotland, Denmark, France, Italy, Hawaii, Canada, and the United States will contribute to this issue. Truly the editors and publishers deserve great praise for so fitly rounding out this the fiftieth volume.

Dr. Hans Lamber has qualified in ophthalmology in Vienna and as matters now stand it is likely that he will be called upon to fill temporarily the place made vacant by the death of Prof. Dr. Schnabel. Professors Hess and Dimmer have declined the call to succeed Schnabel, doubtless because of the poor facilities for work and the inadequate quarters. Professor Bernheimer of Innsbruck was considered, but was not definitely offered the place, probably because a third refusal was feared. Prof. Anton Elsching seems the logical man to succeed his former chief, but it is doubtful if he would accept.

Jullundur City, Punjab, India, Oct. 26, 1909.

Editor OPHTHALMIC RECORD.

Dear Sir:—The new Victoria Memorial Hospital of Jullundur, India, where Major Henry Smith, I. M. S., the cataract-in-the-capsule operator, has been stationed for the past fifteen years, was formally opened by a ceremonial program on October 25, 1909. His Honor Sir Louis Dane, Lieutenant Governor of the Punjab, officiated at the dedicatory ceremonies and a “durbar” was held on that occasion in honor of the event. An immense canvas tent was erected in the large open space in front of the main hospital build-

ing and there was a great gathering of native Mohammedan and Hindu citizens, as well as several Rajahs, all dressed in oriental splendor, a large company of native Sikh soldiers, a goodly attendance of British officers and their wives and many guests present. The affair was conducted in true oriental fashion, although the speeches were all in English.

The old Jullundur City Hospital in which Major Smith has labored for the past fifteen years, was a veritable eyesore and would offend the five senses of any man. Major Smith succeeded in raising a popular subscription of 135,000 rupees without calling on the government for a single sou, and he designed and supervised the entire construction of the new hospital which stands as a monument to his energy and public spirit.

The buildings cover several acres of ground and are thoroughly modern, being of the pavilion or detached-ward style and equipped with modern operating rooms, sterilizing outfits, etc.

On the day following the opening ceremonies, there were 120 operations of all kinds performed by Major Smith and three assistants—59 were cataract-in-the-capsule extraction, 24 were iridectomies for glaucoma and other conditions, 28 were operations for relief for entropion (trachoma is very common here) and the remainder were operations that come within the province of the general surgeon, such as excision of cancer of the parotid gland, arthrectomy of the knee joint for tuberculosis, resection of the ribs for empyema, crushing operation for stone in the bladder, etc. In all 95 patients were operated upon and put to bed in the new hospital in one day. This for one day's record of operations by one man and his small staff is, I think, remarkable enough to go on record, although Smith told me he had had many busier days.

Major Smith has been notified of his appointment as civil surgeon to the district of Amritsar, which is a much larger and wealthier community, located almost fifty miles to the northwest from Jullundur on the Northwestern Railroad. The appointment was made in recognition of Smith's labors in the Jullundur district, which have been very active as we all know and the new field of labor will afford him a better opportunity to enlarge his clinical field, as well as to enrich his exchequer. Very sincerely,

D. T. VAIL.

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The Ophthalmic record

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